The Economist

June 4th, 2011



Politics this week



After his arrest in Serbia, **Ratko Mladic**, the wartime commander of the Bosnian Serbs, was flown to The Hague to stand trial for war crimes. He had spent 16 years on the run; prosecutors are trying to speed up the court proceedings. Mr Mladic's capture is expected to lead later this year to Serbia becoming a candidate to join the European Union. See article

Germany reversed course on nuclear energy in the wake of the Fukushima disaster in Japan, announcing that all of its nuclear-power stations will be phased out by 2022. Nuclear power supplies around a quarter of German electricity. The government hopes to fill the gap with renewable energy, but critics say that this will be hard to achieve and that more gas- or coal-fired power generation may mean Germany misses its target for cutting carbon emissions. See article

A deadly outbreak of *E. coli* infections in northern Germany killed at least 17 people and affected 1,500 others. The Germans caused outrage by at first blaming cucumbers imported from Spain, but later admitted that they were wrong. The source of the outbreak remains unknown. See article

Italy's prime minister, Silvio Berlusconi, suffered a setback in local elections when most of his party's candidates were defeated, even losing the stronghold of Milan. Mr Berlusconi's coalition partner, the Northern League, also did badly. But so did the main centre-left party: the big winners were parties even further to the left. See article

Opening shot

As expected, America's House of Representatives voted overwhelmingly against raising the government's **debt limit** without related concessions on spending cuts; 82 Democrats joined Republicans in voting no. Negotiations continue between the White House and Congress.

Barack Obama nominated General Martin Dempsey to be the next **chairman of the Joint Chiefs of Staff**, to replace Admiral Mike Mullen, whose term expires at the end of September. It was only recently that General Dempsey became head of the army. His appointment is the latest in Mr Obama's shake-up of his national-security team.

Mr Obama also selected his next **commerce secretary**. John Bryson is a former boss of Edison, an energy company, and was one of the founders in 1970 of the Natural Resources Defence Council, which is now one of America's biggest green groups. See article

Among friends, again



Manuel Zelaya, who was ousted as president of **Honduras** by a coup in 2009, returned home following an agreement under which charges against him of corruption and of violating the constitution were dropped. As part of the pre-arranged deal, Honduras was readmitted to the Organisation of American States after Mr Zelaya's homecoming.

A draft report commissioned for the United States Agency for International Development found that last year's earthquake in **Haiti** killed between 46,000 and 85,000 people, not 316,000 as Haiti's government claims. It also suggested that only 66,000 Haitians are still living in tent cities, rather than the 600,000 that aid agencies state, and that many of those did not lose their homes in the disaster.

A Spanish judge charged three former security ministers from **El Salvador** and 17 other soldiers with the killing of six Jesuit priests, their housekeeper and her daughter in 1989, during the country's civil war. A peace deal included an amnesty for these and other killings, but Spain's courts claim universal jurisdiction for crimes against humanity.

On the brink



Civil war loomed in **Yemen** as at least 39 people were killed in clashes between security forces and tribal fighters in the capital, Sana'a, and at least 50 people, mainly protesters, were killed by the army in the country's second city, Taiz. Jihadists captured Zinjibar, a coastal town east of Aden. See article

Syria's turmoil persisted, with at least 42 people being killed since May 27th. The torture and death of a 13-year-old boy, Hamza al-Khatib, at the hands of the security service became a *cause celebre*. See article

Bahrain's government lifted a state of emergency, two-and-half months after it was imposed, with the help of Saudi and Emirati forces, to suppress Shia dissidents. See article

Five generals were among 120 soldiers who defected from Muammar Qaddafi's regime in **Libya**. Jacob Zuma, South Africa's president, flew to Tripoli, the Libyan capital, in a vain bid to make peace under the African Union's aegis.

North and South **Sudan** agreed to create a demilitarised zone along their hotly disputed border and to patrol the area jointly, presumably until they reach agreement on how to share proceeds from nearby oilfields.

Ripples

To fend off colleagues joining an opposition no-confidence vote, **Japan's** embattled prime minister, Naoto Kan, promised vaguely that he would step down after the crisis brought about by March's earthquake and tsunami had past. Mr Kan survived the motion.

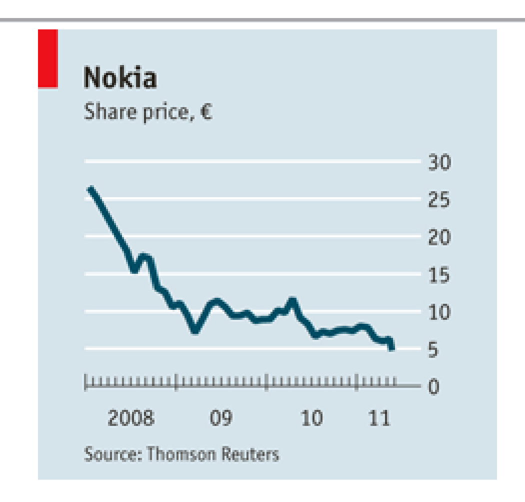
Google revealed that there had been another big cyberattack on its Gmail service, apparently originating from the city of Jinan in **China**. Google said that hackers tried to obtain the account details of hundreds of users, including senior American government figures, Chinese political activists, officials in several Asian countries (mostly South Korea), military personnel and journalists. See article

NATO air strikes in **Afghanistan** inadvertently killed dozens of civilians, including Afghan police who had been engaged in a battle with the Taliban. In protest, Hamid Karzai, the president, threatened to consider NATO as "an occupying power" if such incidents continue, though it was unclear what that would entail.

Around 200 Taliban fighters crossed the border into **Pakistan** and besieged an army post. A week earlier terrorists attacked a naval base in Karachi. A Pakistani journalist who reported on al-Qaeda's infiltration of the navy, and of the intelligence agency's threats against him, was found dead. He had been tortured. See article

A human-rights official working for the UN called on the government of **Sri Lanka** to investigate video footage that seems to depict the summary executions of men captured during the final stages of the civil war with Tamil separatists. See article

Business this week



Nokia's share price fell to its lowest level in 13 years after the company issued a profit warning and forecast that sales in the second quarter would be "substantially below" expectations. The Finnish mobile-phone-maker is struggling with the transition to smartphones and other clever devices. In February it announced that it would switch the operating system that runs its handsets to Microsoft Windows, though its first such products are not due until at least the end of this year.

Hold the phone

The World Health Organisation's agency for cancer research classified **radio waves from mobile phones** as "possibly carcinogenic". The agency looked at current research and based its assessment partly on the association between phone use and glioma, a type of brain cancer, but did not specify the level of risk. The GSMA, which represents the mobile-phone industry, said the classification "suggests that a hazard is possible but not likely". Other items the agency classifies as "possibly carcinogenic" include coffee and some pickled vegetables.

Sprint Nextel formally asked regulators to block **AT&T's** proposed $39 billion takeover of **T-Mobile USA**, arguing it would lead to less competition. The regulators are expected to complete their reviews within a year.

South Africa's Competition Tribunal gave the go-ahead for **Walmart's** takeover of **Massmart**, a South African retailer with operations in 14 African countries. Approval for the deal was in some doubt because of union opposition, but the retailers have agreed to keep current staffing levels for two years and to retain working arrangements for three years. The unions have warned, however, that they also want to renegotiate the terms for local suppliers. See article

Weaker-than-expected data in America on the economy and housing caused **stockmarkets** to shudder, with the Dow Jones Industrial Average recording its biggest single-day drop in almost a year.

India's economic growth rate slowed again in the first three months of the year, to 7.8% year on year. The news is not expected to deter the central bank from its policy of raising interest rates to tackle inflation.

The World Trade Organisation's members agreed to try to salvage some of the **Doha round's** least contentious proposals that affect the poorest countries, for approval at a ministerial conference in December. Still, some members warned that even this could be difficult, with troublesome issues such as cotton subsidies retained in the watered-down negotiations.

Slow justice

A court in Milan sentenced **Antonio Fazio**, a former governor of Italy's central bank, to four years in prison for trying to block a Dutch bank's takeover of an Italian lender in order to smooth the path for a rival bid from another Italian bank. Mr Fazio resigned in 2005 when the scandal surfaced. He remains a free man while he appeals against the conviction.

Kohlberg Kravis Roberts and Hillcorp Energy agreed to sell their oil and natural-gas assets in a south **Texan shale** formation to Marathon Oil for $3.5 billion. KKR made its initial investment in the project only a year ago and stands to make a handsome profit from the deal.

The EU's European Investment Bank suspended all lending to **Glencore**, citing "serious concerns" with governance at the world's biggest commodities-trading company, which recently made its stockmarket debut. The EIB is investigating a $50m loan it made to Glencore's Mopani copper mine in Zambia, but says its concerns "go far beyond" that investment. Glencore said it welcomed the inquiry and expects to be "completely exonerated".

Renault named a new chief operating officer to replace Patrick Pelata, who resigned in April along with a handful of other executives for a botched internal investigation into corporate espionage. Renault's new number two is Carlos Tavares, the head of the Americas division of Nissan, Renault's partner.

Moniker business

Twitter unmasked an anonymous British user who posted disparaging comments about local councillors in north-east England, after the council asked a court in California for his identity. "Mr Monkey" is rumoured to be a disgruntled councillor. The case could have an impact on other anonymous tweeters in Britain and comes amid a political debate over privacy, after the name of a footballer who had allegedly had an affair but whose identity was legally protected was circulated on Twitter.

A **New York** congressman had his own Twitter problems when a picture of a man waist-down in his underwear appeared on his Twitter page. Anthony Weiner insisted that the incident was a hoax.

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KAL's cartoon



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Thirty years of a disease

The end of AIDS?

Thirty years on, it looks as though the plague can now be beaten, if the world has the will to do so



ON JUNE 5th 1981 America's Centres for Disease Control and Prevention reported the outbreak of an unusual form of pneumonia in Los Angeles. When, a few weeks later, its scientists noticed a similar cluster of a rare cancer called Kaposi's sarcoma in San Francisco, they suspected that something strange and serious was afoot. That something was AIDS.

Since then, 25m people have died from AIDS and another 34m are infected. The 30th anniversary of the disease's discovery has been taken by many as an occasion for hand-wringing. Yet the war on AIDS is going far better than anyone dared hope. A decade ago, half of the people in several southern African countries were expected to die of AIDS. Now, the death rate is dropping. In 2005 the disease killed 2.1m people. In 2009, the most recent year for which data are available, the number was 1.8m. Some 5m lives have already been saved by drug treatment. In 33 of the worst-affected countries the rate of new infections is down by 25% or more from its peak.

Even more hopeful is a recent study which suggests that the drugs used to treat AIDS may also stop its transmission (see article). If that proves true, the drugs could achieve much of what a vaccine would. The question for the world will no longer be whether it can wipe out the plague, but whether it is prepared to pay the price.

The appliance of science

If AIDS is defeated, it will be thanks to an alliance of science, activism and altruism. The science has come from the world's pharmaceutical companies, which leapt on the problem. In 1996 a batch of similar drugs, all of them inhibiting the activity of one of the AIDS virus's crucial enzymes, appeared almost simultaneously. The effect was miraculous, if you (or your government) could afford the $15,000 a year that those drugs cost when they first came on the market.

Much of the activism came from rich-world gays. Having badgered drug companies into creating the new medicines, the activists bullied them into dropping the price. That would have happened anyway, but activism made it happen faster.

The altruism was aroused as it became clear by the mid-1990s that AIDS was not just a rich-world disease. Three-quarters of those affected were-and still are-in Africa. Unlike most infections, which strike children and the elderly, AIDS hits the most productive members of society: businessmen, civil servants, engineers, teachers, doctors, nurses. Thanks to an enormous effort by Western philanthropists and some politicians (this is one area where even the left should give credit to George Bush junior), a series of programmes has brought drugs to those infected.

The result is patchy. Not enough people-some 6.6m of the 16m who would most quickly benefit-are getting the drugs. And the pills are not a cure. Stop taking them, and the virus bounces back. But it is a huge step forward from ten years ago.

What can science offer now? A few people's immune systems control the disease naturally (which suggests a vaccine might be possible) and antibodies have been discovered that neutralise the virus (and might thus form the basis of AIDS-clearing drugs). But a cure still seems a long way off. Prevention is, for the moment, the better bet.

There are various ways to stop people getting the disease in the first place. Nagging them to use condoms and to sleep around less does have some effect. Circumcision helps to protect men. A vaginal microbicide (none exists, but at least one trial has gone well) could protect women. The new hope centres on the idea of combining treatment with prevention.

A question of money

In the early days scientists were often attacked by activists for being more concerned with trying to prevent the epidemic spreading than treating the affected. Now it seems that treatment and prevention will come in the same pill. If you can stop the virus reproducing in someone's body, you not only save his life, you also reduce the number of viruses for him to pass on. Get enough people on drugs and it would be like vaccinating them: the chain of transmission would be broken.

That is a huge task. It is not just a matter of bringing in those who should already be on the drugs (the 16m who show symptoms or whose immune systems are critically weak). To prevent transmission, treatment would in theory need to be expanded to all the 34m people infected with the disease. That would mean more effective screening (which is planned already), and also a willingness by those without the symptoms to be treated. That willingness might be there, though, if it would protect people's uninfected lovers.

Such a programme would take years and also cost a lot of money. About $16 billion a year is spent on AIDS in poor and middle-income countries. Half is generated locally and half is foreign aid. A report in this week's *Lancet* suggests a carefully crafted mixture of approaches that does not involve treating all those without symptoms would bring great benefit for not much more than this-a peak of $22 billion in 2015, and a fall thereafter. Moreover, most of the extra spending would be offset by savings on the treatment of those who would have been infected, but were not-some 12m people, if the boffins have done their sums right. At $500 per person per year, the benefits would far outweigh the costs in purely economic terms; though donors will need to compare the gain from spending more on knocking out AIDS against other worthy causes, such as eliminating malaria (see article).

For the moment, the struggle is to stop some rich countries giving less. The Netherlands and Spain are cutting their contributions to the Global Fund, one of the two main distributors of the life-saving drugs (the other is Mr Bush's brainchild, PEPFAR), and Italy has stopped paying altogether.

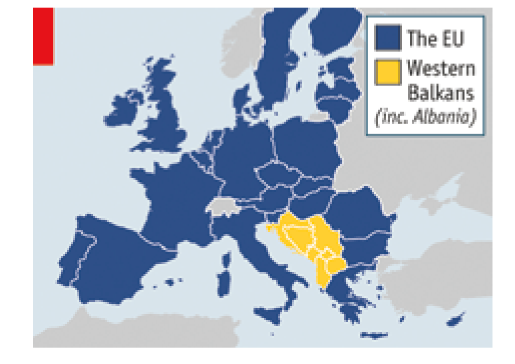
On June 8th the United Nations meets to discuss what to do next. Those who see the UN as a mere talking-shop should remember that its first meeting on AIDS launched the Global Fund. It is still a long haul. But AIDS can be beaten. A plague that 30 years ago was blamed on man's iniquity has ended up showing him in a better, more inventive and generous light.

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The EU and the western Balkans

No more Brussels bluff

The European Union should get on with admitting the better-run countries from the western Balkans



FOR Europe's politicians, whose voters do not much like the idea of further expansion, Serbia's failure to catch Ratko Mladic was convenient. With the country's most egregious suspected war criminal at liberty, the European Union had a plausible reason to prevaricate about admitting it.

Now that Mr Mladic is heading for a well-deserved trial in The Hague, the EU must stop making excuses. Once Serbia meets tough standards for membership, it must be admitted. The same goes for the other bits of the old Yugoslavia (Bosnia, Croatia, Kosovo, Macedonia and Montenegro) plus Albania.

Much is going well in the western Balkans. A new "Yugosphere" of common culture and trade links is eroding the nightmarish memories of war and ethnic cleansing (see article). But bloodletting was painfully recent, distrust is rife and hatred still lurks. Should conflict revive in this most fragile and dangerous part of Europe, the whole continent would suffer.

One force for stability in the region is continued American engagement, for which the United States-often accused of ignoring Europe-deserves praise. The other is the prospect of EU membership (see article). The promise of trade with, and free movement within, the EU has encouraged countries to rein in their nationalists and embed democracy. But so far from ex-Yugoslavia only Slovenia has been admitted-in 2004.

Slovenia, small, rich and stable, was no problem. But suspicions remain in the EU that the rest of the Yugosphere and Albania will be like Romania and Bulgaria, admitted prematurely with deepseated crime and corruption still unsolved.

Romania and Bulgaria are indeed imperfect EU members-but that is largely because they were let in too speedily in 2007. A French desire to see some (notionally) francophone countries in the EU undermined officials' attempts to be tough on the vital questions of judicial reform and organised crime. So did German commercial interests. The lesson for the EU, thus, is not that expansion should stop, but that it needs to discriminate between those countries that are ready for membership and those that aren't.

Croatia, the richest of the lot, clearly is. It should finish its talks soon and join in 2013. Serbia, the best-run and biggest, deserves to gain candidate status in December, especially if it can show more flexibility over its former province of Kosovo. A deal to let Kosovo's exports into Serbia would make sense for both. Montenegro (the smallest, and already a candidate) has also made progress: formal talks should start this year.

Tough love for the Macedonians, Bosnians and Albanians

By contrast, the EU should ask more of Macedonia, which faces a messy election on June 5th after wasting years in gesture politics. Macedonian politicians blame their woes on an arcane dispute with Greece over their country's name (which Greece says refers to its own northern provinces). But corruption, unemployment and misrule have worsened. More of this, and Macedonia should risk losing its status as a candidate. In Bosnia squabbling politicians are undermining the state. The EU should tell them that such disagreements will sink their membership chances. If Croatia and even Serbia got in, Bosnia's squabbling politicians would have a hard job explaining to voters why they were marooned outside. The same applies to unruly Albania, which after years of progress is in danger of turning once more into a basket-case.

With the Arab spring turning into a hot summer, the gaze of EU diplomats will no doubt be drawn across the Mediterranean. But the EU has a more immediate job to do in the western Balkans-and a lot to gain from doing it well. If it sets high standards for others, it must live up to them too.

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Brazil's economy

Too hot

Latin America's biggest economy is more fragile than it appears



BRAZIL has a lot to be proud of. A decade of faster growth and progressive social policies has brought a prosperity that is ever more widely shared. The unemployment rate for April, at 6.4%, is the lowest on record. Credit is booming, particularly to the swelling numbers who have moved out of poverty and into the middle class. Income inequality, though still high, has fallen sharply. For most Brazilians life has never been so good.

That success is partly thanks to good luck, in the form of booming commodity prices. But it is also the result of good policies. A country once known for its macroeconomic incompetence has maintained an enviable stability, deftly navigating the 2008 financial crisis as well as the more recent influx of foreign capital. Not surprisingly, perhaps, many of Brazil's economic officials now have an air of smugness about them, as they argue that the rest of the world has more to learn from Brazil than vice versa.

The timing of such complacency could not be worse. The economy is overheating. The government is stalling on a deeper reform agenda that is essential to boost Brazil's long-term growth and fiscal stability. President Dilma Rousseff's growing political problems do not help: her chief of staff, Antonio Palocci, is under fire over fat consulting fees (see article). All this adds up to a warning: Brazil's economy is heading for trouble.

Inflation is 6.5% and rising. It is driven (as elsewhere) by food and fuel costs, but the tightness of Brazil's labour market suggests that it could easily become entrenched as workers expect higher prices and demand higher wages. The jobless rate is well below the level that is consistent with stable prices. Although professional forecasters' expectations of future inflation have stabilised, the proportion of ordinary folk expecting higher prices has risen. Wage gains in some sectors are already running into double digits. If the labour market remains red-hot, stubborn and creeping inflation seems all too likely-especially if (as seems probable) foreign investors eventually become alarmed and the exchange rate weakens.

Give it a squeeze

The best way to counter the inflation risk is through tighter macroeconomic policies. Brazil's central bank has been raising interest rates, but monetary conditions are still looser than before the financial crisis in 2008, when joblessness was much higher. Brazilians fret, reasonably, that faster rate rises will attract even more foreign capital. Lured by high interest rates, investors have piled into the country, sending the currency soaring to an increasingly overvalued rate, despite an expanding arsenal of taxes designed to deter them. Brazilian officials are right to worry about the impact of foreign capital flows, but their emphasis on controls and fear of raising rates have distracted them from a more potent tool: tighter fiscal policy.

Ms Rousseff's government brags about its fiscal squeeze. Thanks to strong revenues and a slowdown in investment spending, the primary budget (ie, excluding interest payments) is on track to hit a surplus of almost 3% of GDP. But that is not nearly bold enough. To dampen overall demand growth and reduce Brazil's real interest rates, the government needs far more ambitious fiscal consolidation: with the economy growing strongly, the overall budget (ie, including interest payments) should be in surplus, especially if the government is to have the scope for a fiscal stimulus when the next

recession comes. Worse, today's gains are coming from the wrong sources; rather than slowing investment, the state should be squeezing its transfer payments. Nor are the gains likely to be sustained. Under current rules, Brazil's minimum wage will rise by 7.5% in real terms next year-at huge fiscal cost, since pension payments are linked to the minimum wage.

Tighter fiscal policy is Brazil's best defence against short-term economic trouble. An overhaul of government is also the route to boosting longer-term growth. A streamlined state will improve productivity growth as well as Brazil's saving and investment rates. Pension reform is urgently needed in a country that is ageing fast, has absurdly generous pensions and in which the average woman retires at 51. So, too, is an overhaul of Brazil's fiendishly complicated and distortive tax system.

Such reforms are difficult, and tempting to put off. But without them Latin America's biggest success story will start to look a lot less lustrous.

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Turkey's election

One for the opposition

The best way for Turks to promote democracy would be to vote against the ruling party



MOST Turks are understandably grateful to the ruling Justice and Development (AK) party, and especially to their prime minister, Recep Tayyip Erdogan (pictured). Since AK first came into single-party government in November 2002, the economy has done exceptionally well. Turkey has reformed itself enough to secure the opening of membership negotiations with the European Union. It has pursued a more vigorous foreign policy in its neighbourhood. And a politically intrusive army has been firmly returned to its barracks.

Thanks to these achievements, Turkey has become an economic and political power, both in its region and in the world. Although its relations with Israel and America have soured, in the Islamic world it stands out as a thriving Muslim democracy-an inspiration to the Arab awakening. This is in striking contrast to the mess that the AK party inherited: an economic meltdown, a bust banking system, weak coalition governments that came and went with dizzying rapidity, and the ever-present threat of military intervention.

That Turkish voters are poised to return Mr Erdogan to power in the general election on June 12th is thus not surprising. It is, however, worrying. Mr Erdogan is riding sufficiently high in the polls to get quite close to the two-thirds parliamentary

majority that he craves because it would allow him unilaterally to rewrite the constitution (see article). That would be bad for Turkey.

This judgment is not based on the canard that a theocracy is being built. Nine years ago Istanbul's secular establishment fretted about AK's Islamist roots-and some early squabbles over religious schools and allowing women to wear the Muslim headscarf at university were indeed troubling. But since then the pious Mr Erdogan and his party have been pragmatic. No matter what the army and too many Israelis (and Americans) whisper, there is scant evidence that AK is trying to turn a broadly tolerant Turkey into the next intolerant Iran.



Explore our

The real worry about the AK party's untrammelled rule concerns democracy, not religion. Ever since Mr Erdogan won his battles with the army and the judiciary, he has faced few checks or balances. That has freed him to indulge his natural intolerance of criticism and fed his autocratic instincts. Corruption seems to be on the rise. Press freedom is under attack: more journalists are in jail in Turkey than in China. And a worrying number of Mr Erdogan's critics and enemies, including a hatful of former army officers, are under investigation, in some cases on overblown conspiracy charges.

On top of this, on the campaign trail Mr Erdogan has begun to take a more stridently nationalist tone: he and his party are no longer making serious overtures to the Kurds, Turkey's biggest and most disgruntled minority. Mr Erdogan has hinted that if he wins a two-thirds majority next week, he will change the constitution to create a powerful French-style presidency, presumably to be occupied by himself. In a country that is already excessively centralised, that would be a mistake.

It would be better if a new AK government were to take a more broadly inclusive approach. Turkey's constitution does indeed need a makeover, but it should be rewritten in consultation with other political parties and interest groups, and not as an AK project. The best way to make sure this happens would be to push up the vote for the main opposition party, the centre-left Republican People's Party (CHP). Assuming that two smaller parties also get into the grand national assembly, that should be enough to deny AK its two-thirds majority.

As it happens, the newish CHP leader, Kemal Kilicdaroglu (nicknamed Gandhi for his ascetic ways), has been a huge improvement on his dinosaur of a predecessor, Deniz Baykal. He has weeded out much of the party's old guard, shown himself intolerant of corruption and shifted the party away from its instinctive sympathy for the army's role in politics. Even more remarkably, Mr Kilicdaroglu has been attracting more supporters than Mr Erdogan to election rallies in the mainly Kurdish south-east, where the CHP has long been weak, by talking more openly of giving all of Turkey's 81 provinces greater autonomy (it probably helps that he is from the Alevi Muslim minority and that he may have Kurdish forebears).

A vote against autocracy

The AK party is all but certain to form the next government. But we would recommend that Turks vote for the CHP. A stronger showing by Mr Kilicdaroglu's party would both reduce the risks of unilateral changes that would make the constitution worse and give the opposition a fair chance of winning a future election. That would be by far the best guarantee of Turkey's democracy.

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The awfulness of FIFA

An embarrassment to the beautiful game

Swiss parliamentarians and commercial sponsors should push to reform a rotten organisation



WHETHER he possesses a bottomless capacity for self-delusion or simply breathtaking cynicism, Sepp Blatter's performance at a press conference earlier this week was beyond parody. Asked whether recent corruption allegations meant that the governing body of the world's most popular game was in crisis, the Swiss 75-year-old president of FIFA, replied: "What is a crisis? Football is not in a crisis. We have just seen a beautiful Champions League final with Barcelona, with fair play. We are only in some difficulties. And they will be solved inside our family." Mr Blatter's attempt to link the sublime skills of the European champions with the moral squalor of the outfit he has run for the past 13 years was true to form. His uncontested re-election (after the removal of his only rival, Qatar's Mohamed Bin Hammam, amid bribery charges) a couple of days later for a fourth four-year term was depressing for anyone who cares about the "beautiful game".

Under Mr Blatter's predecessor, Joao Havelange, a wheeler-dealing Brazilian, FIFA became a mechanism for using revenues from the World Cup, the biggest sporting event on earth, to sustain a global network of patronage. Mr Blatter has honed the system as FIFA's revenues from broadcasting and marketing rights have multiplied to more than $4 billion over a four-year cycle. In the four years up to 2010, after its contribution to the costs of the World Cup in South Africa, FIFA made a profit of $631m and kept a handsome $707m for its own operating expenses, while dispensing $794m to its 208 grateful member football associations, many of them poor and dependent on FIFA's largesse. Each member association, regardless of its size, has one vote at FIFA's congress, which elects the president. The other 23 members of the executive committee that runs the organisation are chosen by the regional confederations. Few in what Mr Blatter nauseatingly refers to as the "football family" have any interest in challenging the status quo.

Thanks mainly to muck-raking British journalists, a deep culture of corruption within FIFA has been exposed. Last year two members of the executive committee were suspended for soliciting bribes from undercover reporters. This year, following the vote to give Russia the 2018 World Cup and the bizarre decision for the competition in 2022 to be hosted by tiny, hot but extremely rich Qatar, the allegations have mounted. First, a whistleblower who worked for the Qatar bid team revealed that two executive committee members were each paid $1.5m for their backing. Then Lord Triesman, one-time leader of England's 2018 bid, spoke of "improper and unethical" conduct by four more committee members. And last week, Chuck Blazer, an American FIFA bigwig, claimed two fellow members of the committee, Jack Warner and Mr Bin Hammam, had offered $40,000 bribes to Caribbean officials to vote against Mr Blatter. After both men were suspended, Mr Warner disclosed that he had received an e-mail from FIFA's general secretary, Jerome Valcke, saying that Qatar had "bought" the World Cup. Mr Valcke admits sending the e-mail but disputes Mr Warner's interpretation of it. All those accused deny any wrongdoing.

The goal needs some uprights

Mr Blatter says that he will reform the organisation. That seems, to put it mildly, improbable. Among the member football associations, England is pushing for change, but it has few friends. If the governments of the big European countries were to demand external regulation of FIFA's activities, it might have some impact. But Michel Platini, the French former footballer who leads UEFA, FIFA's European affiliate, is in line to succeed Mr Blatter and does not want to rock the boat.

That leaves two groups of people who could bring about change. Swiss parliamentarians could end the Zurich-based organisation's favourable tax treatment. They should do so unless it cleans itself up. Then there are the commercial sponsors, who pay a big chunk of FIFA's bills. They have shown steel before: after the Salt Lake City bidding scandal, the sponsors forced the International Olympic Committee to become more transparent. They should do so again, this time to get rid of Mr Blatter. Football deserves better than him.

Letters

On alternative medicine, the special relationship, banks, China, Pakistan, India's cinemas, Nick Clegg, beer, DSK

Letters are welcome via e-mail to letters@economist.com

The healing process



SIR - As a doctor who uses both conventional and complementary therapies in my practice, I read your leader on alternative medicine with interest ("There is no alternative", May 21st). I agree with your assessment regarding the potential benefits of reforming the doctor-patient relationship, but I disagree entirely with your conclusion that alternative medicine is simply a sophisticated "placebo delivery service" that is "mostly quackery" and a "colossal waste of money".

Too often heavily biased in-house scientific research performed by the medical industry for the purpose of demonstrating the supposed superiority of one medical product to another has been used by the industry to demonstrate a superiority to natural alternatives, which are less amenable to double-blind, placebo-controlled studies for technical reasons. More worryingly, such research is also used as a justification for the elimination of industrial medicine's alternative competition by labelling alternative therapies as unfounded or even dangerous.

The growing popularity of alternatives to the drugs-and-surgery approach attests to an emerging awareness of the limitations of conventional medicine. The presence of alternative medicine in the medical marketplace provides more therapeutic options for patients and is an essential counterbalance that compels the medical industry to maintain its humanist foundations in the drive for corporate profits.

Dr Christopher Peine
Boise, Idaho

SIR - I have for years used acupuncture with good results, particularly in cases that have not responded to the medications and surgical procedures used in the Western medical canon. Acupuncture is practised by many physicians in the West and has been validated not only clinically but with double-blind studies. The method works, and our lack of understanding

does not lessen its effect but underscores the inadequacy of our knowledge. While the placebo effect is an important phenomenon, it accompanies all forms of treatment, whether Western, Eastern, or otherwise.

Anthony Jahn
Professor of clinical otolaryngology
Columbia University
New York

* SIR - You mentioned ("Think yourself better", May 21st) that placebos can "produce very nearly the same effect as dosing [patients] with the latest antidepressant medicines". Although it is understandable that researchers place their emphasis on the healing effects of placebos, doesn't it follow that doctors, especially in psychiatry, could be making people sick with bad diagnoses, and indeed by creating fake illnesses?

If it could be proved that diagnosing someone with a psychiatric condition actually causes them to have that condition, and perhaps even that the definition of a new psychiatric condition that does not in fact exist, can indeed bring that condition into existence, then researchers will have invented a radical new basis for massive class-action suits. Perhaps that explains why placebo research focuses on suggestive healing rather than suggestive harming.

Len Epp
Montreal

America and Britain



SIR - Rebranding the special relationship between America and Britain as the "essential relationship" does not solve the problems it is presumably intended to address, namely, the obvious imbalance in power and the suggestion that it ranks above any other bilateral relationship enjoyed by the two countries ("Essential, but fraying", May 28th). The problem is not with the word "special", but with the use of the definite article, as in "the special relationship".

My suggested rebrand is "a special relationship". After all, as my eight-year-old daughter reminds me, you can never have too many special friends.

Gregory Jones, QC
London

Banks and capital ratios

SIR - Your special report on international banking (May 14th) highlighted a critical question: What is the true cost to national economies of higher capital requirements for banks? You were right to say that the potential barriers to economic growth created by raising capital requirements are poorly understood.

The financial crisis of 2008 demonstrated the need for a more stable financial system. The Dodd-Frank Act in the United States and regulatory efforts elsewhere put in place a path to prudent reforms. However, no consensus exists on the potential drag that higher capital levels can place on national economies. How can regulators set proper standards when uncertainty about the cost of capital requirements remains unresolved?

Inherent in any discussion of capital levels is the trade-off between economic growth and the possibility of disruptive bank failures. With unemployment high, output sluggish and an aggressive monetary policy in many developed countries, the economic impact of higher capital levels requires careful attention and debate.

Senator Kay Hagan
Member of the Senate Banking Committee
Washington, DC

The games people play

SIR - You stated that Henry Kissinger's new book over-interprets Chinese strategists as thinking like players in a game of Go, where the goal is to avoid encirclement as opposed to the tactical approach of chess ("No go", May 21st). Perhaps better geopolitical examples are mahjong in Asia and poker in the West: both are skilful and involve high stakes. Mae West once asked W.C. Fields if poker was a game of chance, to which he replied, "Not the way I play it."

Norman Smith
Delray Beach, Florida

Another element to Pakistan



SIR - Your bold analysis of "The world's most dangerous border" between India and Pakistan (May 21st) missed one important factor: population. Pakistan is one-fifth larger in area than Texas, but by 2050 it is likely to have more people than today's entire United States. For a nation that spends only a little of the government budget on education, this rapid growth will overwhelm the education system and negate any possibility of employing the burgeoning number of young people.

As in most of the developing world, women in Pakistan (and in much of India) want fewer children than they are having now, but the international community has allowed attention to drift away from family planning. Letting women have the means to manage their childbearing will help to make the world a more stable place. But it is late and decisive action is needed now.

Richard Ottaway, MP
Chairman
Foreign Affairs Select Committee
House of Commons
London

SIR - It is not entirely right that "the Afghan government has never recognised the Durand line." The agreement was first signed by Abdur Rahman Khan, the ruler of Afghanistan, and Sir Mortimer Durand in 1893. It was reconfirmed by Kabul in 1919, 1921 and 1930. The Afghan claim that the line was no longer valid because of the creation of Pakistan in 1947 went against international law.

Gilbert Etienne
Professor emeritus
Institute of International and Development Studies
Geneva

A rhyme for Mr Clegg



* SIR - The reversal of good political fortune for Nick Clegg as a result of taking the Liberal Democrats into a coalition government with the Conservatives ("The uncivil partnership", May 14th) reminded me of this limerick:

"There once was a lady from Niger
Who rode with a smile on a tiger.
They returned from the ride
With the lady inside,
And the smile on the face of the tiger."

David Terry
Droitwich, Worcestershire

India's fleapits

* SIR - India's cinemas are indeed deteriorating, and have been for many years ("Once upon a time in the east", May 14th). I stopped going to theatres in 1985 when I noticed that many had cockroaches and other bugs, wet patches made by lusty males making out with their girls, torn seat-covers (on the seats that weren't broken), poor ventilation and headache-inducing sound systems. I wish Mexico's Cinepolis the very best of luck in trying to jazz up India's cinemas, but I doubt it will make much difference to an industry in terminal decline, not least because of the easy alternatives presented by cable, DVD, satellite TV and the internet.

Prakash Kolla
Bangalore

Cheers!



SIR - I have decided to step up to the challenge that "people in rich countries are not drinking enough beer" ("Sell foam like soap", May 7th). Although as a schoolteacher I am certainly not one of the rich, I will not let that deter me from quaffing more of my favourite imports. To the beer industry-you are welcome.

Jason Knoll
Madison, Wisconsin

Too late for DSK

SIR - Past issues of *The Economist* can provide fascinating insights on current news. In a leader from March 12th ("Can Angela Merkel hold Europe together?") you quote Dominique Strauss-Khan as saying that "in a marriage one did not invite strangers into the bedroom". If only he had followed his own advice.

Jussi Ollila
Helsinki

* Letter appears online only

The Turkish election

Erdogan's last hurrah (possibly)

The election on June 12th will showcase a Muslim democracy. Although the winner is not in doubt, it could have a big impact on Turkey's future



THE rise of Turkey is one of the past decade's most important and least noticed stories. The country has put behind it a grim past as a basket-case that needed repeated rescuing by the IMF. Last year it grew faster than any other big economy barring China and India. As the world's 17th-biggest economy, Turkey has become a leading member of the G20 club. It boasts NATO's largest army after America's and aspires to become a member of the European Union.

The reach of Turkish companies is spreading. They operate not just across the region but around the globe. Turkey is now the world's second-biggest maker of flat glass and Europe's third-biggest producer of televisions. Many construction projects in the Middle East involve Turkish firms and workers. Turkish Airlines, once known by its code letters as "They Hate You", has turned into a global force as Istanbul, now Europe's biggest city by far, has become an aviation hub.

The country's location between Europe and the Middle East lends it huge geopolitical significance, not least as an energy and pipeline corridor. And in the past few years, under the direction of an energetic foreign minister, Ahmet Davutoglu, whose favourite catchphrase is "zero problems with the neighbours", it has developed closer relations with the Caucasus (though the Armenian border is still closed) and with Iran, Iraq, Syria and other Middle Eastern countries, to the consternation of its traditional allies, America and Israel (see article).

Partly because of this increased presence in the Middle East, the Arab spring has brought a new focus on Turkey. Neither Arabs nor Turks much like glib talk about the Turkish model, not least because of the Ottoman imperial past. But with a highly successful economy and as a working example of a Muslim democracy, Turkey offers the Arab world what Mr Davutoglu likes to call "a source of inspiration".

Like many other countries, Turkey was caught napping by events in Tunisia, Egypt and Syria. Yet although it was only a very reluctant supporter of NATO's air campaign in Libya, it has established itself as a crucial actor, not least because its companies are active all over the Arab world and Turkish television (dubbed into Arabic) is so widely watched. Indeed, the Turkish prime minister, Recep Tayyip Erdogan, has become something of a hero to the Arab street, partly because he is seen as a forceful critic of Israel.

All of which makes the Turkish election on June 12th unusually interesting both to the neighbourhood and the world. This is not because there is much doubt about the result. The opinion polls have consistently put Mr Erdogan's mildly Islamist Justice and Development (AK) party, which forms the outgoing government, in a range of 40-45% of the vote-down from 47% in 2007, but up from 39% in municipal elections in 2009. AK has a substantial lead over the main secular opposition Republican People's Party (CHP), which the polls reckon will get a shade under 30%.

The AK party, which has ruled since November 2002, gets credit from voters for overseeing steady economic growth and rising living standards after a horrible decade of economic crisis in the 1990s that culminated in a huge bust in 2001. Turkey looks especially good next to the battered Mediterranean countries that are in the euro zone. It has stronger growth, healthier banks and a lower budget deficit and public debt. Many voters also back Mr Erdogan for securing the opening of EU accession talks in 2005, welcome the country's newly active foreign policy and applaud the party for elbowing the army out of politics, putting an end to another of Turkey's grim traditions: military coups.

Yet the election is about a lot more than the economy, the EU, foreign policy or even the army. Many secular Turks who have thrived in recent years remain worried about the direction in which a victorious AK party might take their country. A new tolerance for the Muslim headscarf and an intolerance of alcohol point the way towards a more fiercely Islamist future, partly inspired by the opaque Fethullah Gulen movement, which seems strongly represented in the police.

There is also some concern about the strident nationalist tone that Mr Erdogan has been taking during the campaign, which seems to match his increasingly autocratic streak and intolerance of criticism. The media have become a particular target. Katinka Barysch of the London-based Centre for European Reform points out that some 50-60 journalists are now in jail, most of them accused of plotting to overthrow the government; around 10,000 lawsuits are pending against writers and broadcasters; and Turkey has dropped to 138th place in the press-freedom ranking of Reporters Without Borders, a lobby group, behind Iraq and only just ahead of Russia.

What makes the election so critical is Mr Erdogan's ambitions to rewrite the Turkish constitution. Although it has been amended a few times, the constitution is still essentially the 1982 text that was drafted by the army after a military coup in 1980. And as Soli Ozel, an academic and commentator in Istanbul, puts it, "this election is not about who is going to win. It is about getting a big enough majority to change the constitution."

There are 550 seats at stake in Turkey's single-chamber grand national assembly. If the current polls are right, AK is likely to win at least half of these (it now holds 61% of the total), enabling Mr Erdogan to form the party's third consecutive single-party government after those in 2002 and 2007. But he is much less sure of surmounting the two higher thresholds for pushing through constitutional change.

The first of these is 330 seats, the number needed to make amendments that then have to be ratified in a popular vote-a procedure used by the AK government last September, when it won a referendum to approve changes bringing the army and the judiciary under greater democratic control. The second is 367 seats, which is how many are needed to change the constitution unilaterally, without any need for approval in a referendum.

Two factors are likely to determine the outcome. The first is how many seats are won by independents. Turkey has an unusually high 10% threshold before a party wins any seats at all. This can produce bizarre results. In 2002, for instance, only AK (with 34% of the vote) and the CHP (with 19%) got into parliament. But candidates can evade the 10% hurdle by running as independents. That is what the mainly Kurdish Peace and Democracy Party (BDP) is doing. It should, as a result, win as many as 30 seats across the country.


Explore our

The other big question is whether the right-wing Nationalist Action Party (MHP), led by Devlet Bahceli, will get over the 10% threshold, as it did in 2007 to deny AK a two-thirds majority. Mr Erdogan has recently been concentrating his fire on MHP voters by espousing strongly nationalist views. A string of seamy sex videos involving MHP parliamentarians has also mysteriously appeared on the internet. Asked who might be responsible, Tugrul Turkes, an MP from the MHP, asks "Cui bono?": a hint that the videos must come from somewhere in the AK party, which hopes that squeezing the MHP below 10% might yet win it the elusive two-thirds majority.

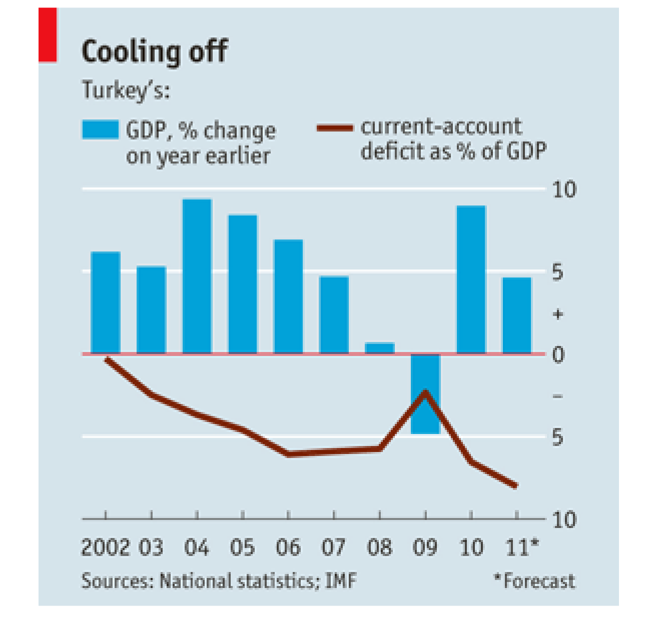
The size of the AK majority, and its ability then to force through a new constitution, will matter for three reasons. First, the 1982 constitution badly needs modernising to erase the memories of military coups in Turkey and complete the transition to a more-or-less normal democracy. One of Mr Erdogan's great successes has been to drive the army (long supported by militant secularists) out of politics, despite the so-called "e-coup" of April 2007, when it announced on the internet that it was against the election of Abdullah Gul (whose wife wears the Muslim headscarf) as president, and a later unsuccessful (army-inspired) attempt by prosecutors to ban the AK party. Now even the CHP, under its newish leader, Kemal Kilicdaroglu, says it wants to keep the army in its barracks.

Second, a new constitution will affect Turkey's EU hopes. Formal membership negotiations have more or less ground to a halt, stymied by a failure to come anywhere near settling the Cyprus dispute, the obstructiveness of some EU countries (notably France) and Turkey's own intransigence. Without some progress after the election, perhaps by a unilateral concession to allow Cypriot ships to dock in Turkish ports, the talks might yet collapse. Yet if it is modernised in the right way, a new constitution could help to bolster Turkey's EU credentials.

Third, though, too big a majority for the AK party could run against this by turning the new constitution into a means of institutionalising Mr Erdogan's political control. The prime minister is barred by political convention from running again in 2015. But he makes no secret of his ambition to become a newly powerful executive president under a changed (French-style) constitution. Confusion about an earlier constitutional change has led to a dispute about whether Mr Gul's current term ends in 2012 or 2014. But the references on Mr Erdogan's campaign posters to 2023, the centenary of Ataturk's republic, suggest that he is thinking of at least two terms for himself.

Gathering clouds

These issues matter all the more because the next (presumably AK) government faces harder times and some knotty problems. Start with the economy, apparently a huge success, with GDP per head more than doubling during AK's time in office. Mehmet Simsek, the finance minister, concedes that the economy shrank sharply in the recession of 2009, but points proudly to its bounce last year. Indeed, he claims that, if the net shift in exports and imports were excluded, real GDP in 2010 would have risen by a staggering 13%. Yet that is not sustainable. Asked about the risk of overheating, Mr Simsek admits that the economy is "very hot", but insists that it is now cooling fast.



Even so, the economy has serious weaknesses. A splurge of consumer spending combined with a big inflow of foreign capital has widened the current-account deficit to a gaping 8% of GDP (see chart). Were that foreign money suddenly to dry up, Turkey could easily find itself heading into a bust once again. Fiscal policy should have been tightened more and sooner. And far more needs to be done to liberalise heavily regulated labour and product markets. In the rich-country OECD club, Turkey ranks bottom on both scores. Unemployment remains high, especially in the east and among young people, and the rate of female participation in the workforce has declined. In short, Mr Simsek still has much work to do to modernise and reform Turkey's economy.

A renewed AK government also faces big political challenges. The constitution will be an early test of its mettle. There will be fierce debate about toning down its more nationalist provisions, including one that defines the inhabitants of Turkey as Turks. Most smaller parties will also press for the threshold for parliamentary representation to be cut from 10%.

Then there is the environment. This nation of builders loves grand infrastructure projects, and the AK party is promising more roads and airports, huge new housing blocks in Anatolia, another bridge across the Bosporus and even a crazy scheme for a canal linking the Black Sea and the Sea of Marmara that would be a match for the Panama Canal. There are few greens in Turkey to warn of the environmental consequences of pursuing growth at any cost. But Turks could come to regret the damage that successive governments have chosen to ignore.



Give us a job

Perhaps most difficult of all for a new AK government to accept will be the case for decentralisation and more regional autonomy. From the beginning, Ataturk's republic has been highly centralised. All 81 provincial governors are appointed

in Ankara, and most decisions about taxation and spending are made there. Party leaders choose all candidates on their lists, as this election has made clear, with both Mr Erdogan and Mr Kilicdaroglu weeding out potential troublemakers in favour of loyalists. A powerful presidency of the sort that Mr Erdogan wants is likely to reinforce these tendencies.

That would also make it harder to settle what is in some ways Turkey's biggest problem: its 14m-odd Kurds, most of them in the poor south-east. Since 2002, Mr Erdogan has given Kurds more freedom and autonomy than they had before, for which he deserves credit. His "Kurdish opening" in 2009 promised still more, including an amnesty for PKK guerrilla fighters based in the mountains of northern Iraq, but the opening now seems to have shut. During the election campaign Mr Erdogan has used much harsher language about the Kurdish party, the BDP. He has even taken potshots at the Alevi, a minority Shia sect that happens to include Mr Kilicdaroglu, for being somehow non-Muslim.

Mr Erdogan has done much to transform Turkey for the better. It is a stabler, richer and more important country than it was when he took over. Yet there are threats looming over the place, not least Mr Erdogan's growing power. A strong executive presidency is not what the country needs right now.

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Electioneering in Anatolia

Local hero

On the campaign trail with the Turkish foreign minister



In search of zero problems

ELECTIONS in Turkey are satisfyingly local. There are no television debates (the prime minister rejected them). Instead leaders and candidates hold flag-waving rallies. For the foreign minister, Ahmet Davutoglu, that means concentrating on his home province of Konya, which he has hardly left in the past few weeks-the Slovakian foreign minister had to come and meet him at home.

Mr Davutoglu was an academic and official adviser to Mr Erdogan before becoming an AK politician and minister in 2007. He does not quite fit the role of rabble-rouser. Yet he seems happy touring Konya and speaking to local crowds from the top of AK party campaign buses. He has visited almost all of the province's 31 townships. Konya is a

conservative place that strongly backs his party (it is hard to find alcohol on sale), but Mr Davutoglu is calling on voters to give AK an 85% majority, more even than in last September's referendum.

A clever, studious type who gets on well with other European foreign ministers like Britain's William Hague, Sweden's Carl Bildt and Finland's Alexander Stubb, Mr Davutoglu has shifted Turkish foreign policy in an eastward direction. He insists that Turkey has not given up its efforts to join the EU, negotiations for which have been going on for over five years, and says he would like to step up strategic dialogue with Brussels. But to many Turks the talks are going nowhere, and Mr Davutoglu himself evinces far more interest in the Middle East.

He rejects accusations that Turkey was slow to wake up to the Arab spring and was too close to dictators such as Libya's Muammar Qaddafi and Syria's Bashar Assad. He claims that Mr Erdogan was the first leader to call on Egypt's Hosni Mubarak to step down. And he says Turkey has been in close contact with Mr Assad, urging him to reform.

What makes Mr Davutoglu controversial in the West, however, are his policies on Iran and Israel. The Turks have dropped their attempt to circumvent the West's approach to Iran. Mr Davutoglu now merely says he wants a nuclear-free Middle East, an echo of America's own policy. Israel is harder. The Turks still want an apology from the Israelis for their assault on a convoy heading for Gaza led by the *Mavi Marmara* last May, in which eight Turkish civilians and one Turkish-American were killed. The *Mavi Marmara* is sailing to Gaza again to mark the anniversary.

Hostility to Israel appeals to many Turkish voters, who feel understandable sympathy for the Palestinians. Yet the big advantage for Turkey in Middle Eastern diplomacy has for many years been its ability to talk to all sides as an honest broker-just as it was doing with Syria and Israel shortly before the war in Gaza in late 2008. Once Mr Davutoglu wins re-election in Konya, and assuming he stays on as foreign minister, he would be well-advised to mend fences with Israel so as to play mediator again. It is hard to see many others filling the gap.

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Environmentalism under fire

Soaring emissions

The rhetoric about environmental controls killing jobs is getting louder and louder



ISN'T it odd, asks Henry Waxman, a Democratic congressman from California, how the same Republicans who make such a fuss about abortion do not seem to care if the unborn are poisoned by toxic chemicals such as mercury? Isn't it

strange, Republicans retort, that people like Mr Waxman, who profess to care about working Americans, cheer on bureaucrats determined to smother business and destroy jobs? It may be hard to discern amid the melodramatic rhetoric, but the two sides are talking about the Environmental Protection Agency, and the various new rules it has in the works to curb pollution. Besides the endless toing and froing about government spending, it has become the most fiercely debated topic in Congress.

As soon as they took control of the House of Representatives in January, Republicans began summoning Lisa Jackson, the head of the EPA, and several of her underlings to answer questions about their job-killing ways. Fred Upton, the head of the committee responsible for energy and environmental regulation, joked that she would be on Capitol Hill so often she would need her own parking space.

The Republicans' chief concern is the EPA's authority, as affirmed by the Supreme Court in 2007, to regulate emissions of greenhouse gases. But more broadly they worry that the EPA is constantly tightening restrictions on pollution, at ever higher cost to business but with diminishing returns in terms of public health. They point to a slew of new rules about industrial boilers, cooling water at power plants, the disposal of coal ash, and emissions of mercury, ozone and other chemicals from smokestacks, which cumulatively, they say, will have a crippling effect on power generation and other industries. "Even God," says Joe Barton, a Republican congressman, "couldn't meet some of the ozone standards."

Mr Barton is among the many Republicans in Congress who question whether global warming is caused by human activity, let alone whether the EPA should be trying to mitigate it by limiting emissions of greenhouse gases. The House has passed a measure that would rescind the EPA's authority to do so, although it was blocked in the Senate, which the Democrats still control. The Republican leadership in the House has accused the administration of plotting to raise the price of energy through onerous regulation, in an effort to promote otherwise uncompetitive green technologies. It wants the EPA to give more weight to the impact on the economy and jobs when drawing up future rules.

Republicans outside Congress are warming to the theme. In late May Chris Christie, the much-feted governor of New Jersey, withdrew his state from a regional pact to reduce greenhouse-gas emissions from power plants. Several prominent Republican candidates for president have recanted past support for curbs on greenhouse gases. One of them, Newt Gingrich, a former speaker of the House, says the EPA should be abolished altogether and an "environmental solutions agency" more sympathetic to business set up in its stead.

EPA officials appear baffled by this barrage of hostility. All the regulations they are promulgating, they point out, are based on laws passed by Congress, usually on a bipartisan basis. The Clean Air Act, for example, which is the basis of the EPA's proposed regulation of greenhouse gases, was signed by Richard Nixon, and strengthened with the support of George Bush senior, both Republicans. The agency, they say, already conducts cost-benefit analyses of all important regulations, in addition to submitting them for expert review and public comment. Every dollar spent on pollution controls mandated by the Clean Air Act, including the ozone restrictions that Mr Barton is complaining about, will bring $30 in benefits to public health, the EPA reckons.

Under Mrs Jackson many of the most significant new rules are also being subjected to a separate review of the impact on jobs; though since onerous environmental restrictions can be labour-intensive, that is not always a good measure of the overall economic benefit. Moreover, the EPA is producing so many regulations at once in part because it is legally bound to. One of the rules the Republicans are complaining about, regarding mercury, arsenic and other toxic chemicals released by power plants, has been in the works for over 20 years. The EPA's original regulations on the subject were thrown out by the courts as too lax. Anyway, so a combative official told her Republican interrogators earlier this year, complaints about the toll on business of pollution controls are almost always wildly exaggerated.

Yet the EPA is clearly stung by the criticism. The White House recently announced that the agency had scrapped a rule requiring leaks of dairy products to be treated as oil spills, as part of a government-wide review of red tape that may be impeding economic growth. It is now considering revisions to a further 31 regulations. It has also delayed the implementation of the new regulations concerning industrial boilers, after loud complaints from the businesses affected. And it seems in no hurry to use its authority over greenhouse gases, settling instead for a lengthy rule-drafting period that could forestall the imposition of any restrictions until after next year's elections.

That is in part, presumably, because at the mid-terms last year the Republicans succeeded in portraying the Democrats' plans to restrict emissions via a cap-and-trade scheme as an all-out assault on the economy, to great effect. John Shimkus, another Republican congressman, says Republicans will benefit again if environmental regulation remains a fraught issue next year. But Democrats like Mr Waxman argue that the Republicans are reading too much into their victory last year.

Voters may put their immediate economic concerns ahead of more amorphous worries about global warming in the wake of the recession, he says, but they are still not willing to tolerate a broader assault on regulations that protect public health.

In short, both the Democrats and the Republicans think they have found a winning theme in the other party's environmental policies. And they may both, in fact, be right. Most polling suggests that the environment is not a critical issue in the eyes of many voters. But talking about it is a great way to fire up activists and donors on both sides.

The economy

Excuses, excuses

A litany of special factors exposes the recovery's fragility



RECOVERIES from financial crises are usually subdued, but America's is starting to look comatose. On May 26th the government said GDP grew by an annualised 1.8% in the first quarter, identical to its preliminary estimate. Economists had hoped for an upward revision. Worse, as signs of weakness accumulate, forecasters have trimmed estimates for the current quarter from around 3.5% they were projecting a month ago to 2.7% or less now.

Last December an agreement between Barack Obama and the Republicans to extend George Bush's tax cuts and enact new ones led to forecasts of 3% to 4% growth this year. But the new consensus rate of 2.6%, for a recovery now two years old, is barely above America's long-term potential and scarcely enough to bring unemployment down. To be sure, the post-crisis imperative for banks and households to reduce their debt meant a V-shaped rebound was never on the cards. Even so, this is a terrible performance.

Economists have found themselves repeatedly making excuses. First it was the snowstorms. Then it was Japan's earthquake, tsunami and nuclear disaster which crimped the supply of parts to car assembly plants in America. Then, as the snow melted, floods ravaged Arkansas, Mississippi, Missouri and Tennessee, and tornadoes battered Alabama and Missouri. America has suffered five incidents of extreme weather this year, each inflicting at least $1 billion in damage.

The most important special factor has been petrol. Prices jumped from $3 per gallon at the end of December to $3.90 in early May. That has siphoned off much of the purchasing power that consumers should have extracted from December's tax agreement and subsequent gains in employment. Total consumer spending rose at just a 6.7% annual rate in the three months to the end of April, but most of that increase was eaten up by inflation. Real spending grew by a paltry 2.2%.

Still, Wall Street expects the economy to perk up in coming months as those special factors begin to fade. Petrol prices have slipped in the past three weeks as monetary policy has tightened in emerging markets. Employment seems still to be rising, albeit at a slower rate. (May figures were to be released after *The Economist* went to press.) And rebuilding after the floods and tornadoes may deliver a fillip in the second half of the year.

Yet if one-offs can so easily depress growth, that only underlines how fragile the economy's underpinnings are. More evidence of that fragility came in the GDP report's sharp downward revisions to households' real after-tax incomes in late 2010 and early 2011. It now appears that consumers have maintained their sluggish pace of spending only by saving less. Since GDP measured by income should equal GDP measured by spending, the poor income data suggest the GDP figures may have to be revised down.

To make matters worse, house prices in March fell to a new post-crisis low. Betsy Graseck of Morgan Stanley reckons they'll fall another 10% to 12% over the next year. That is only one of many reasons she says banks are cautious about lending: they are also facing tougher scrutiny of their underwriting by regulators and buyers of their mortgages.

Both Mr Obama and the Republicans are casting about for cheap ways to boost the economy. On May 26th the White House announced it had found several hundred rules it could eliminate or scale back. The same day, Republicans released a collection of mostly sensible ideas such as passing free-trade agreements and clearing the patent office's backlog. But their main plank is that the federal government slash spending. "Families are tightening their belts and sticking to a budget-and Washington should too," said Eric Cantor, the Republican majority leader in the House. Maybe so, but spending less when households are in no shape to pick up the slack seems a sure-fire way to keep an anaemic recovery off-colour.

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Barack Obama and business

Starting to get along

Two cheers from business for the new commerce secretary



Give them my love

THE choice of John Bryson to be Barack Obama's second commerce secretary has not gone down well with a certain sort of Republican senator, who notes that he embodies two of their pet hates: tree hugging and internationalism. Not only did he co-found the Natural Resources Defence Council, a green lobby group, he sits on an anti-climate-change committee of the, shudder, United Nations. This may make even tougher what was shaping up to be a tricky Senate approval, given earlier talk that Republicans would try to block any appointment as commerce secretary until three agreed bilateral trade deals currently becalmed in Congress are ratified.

Yet the president is likely to care more about the mostly positive reaction of business to his choice of Mr Bryson, a former boss of Edison, a California power company, and a reliable member of the corporate boardroom club at blue-chip firms such as Boeing and Disney. (Indeed, boardroom cronyism may have helped get him the job; he spent several years on the Boeing board alongside William Daley, Mr Obama's newish chief of staff.) Despite his green credentials, Mr Bryson's appointment was welcomed by Tom Donohue, head of the US Chamber of Commerce, who seldom finds anything praiseworthy in what Mr Obama does.

Mr Bryson may not be as exciting a choice as some of those who were said to be in the running for the job, notably Eric Schmidt of Google. He comes from an industry that is dull rather than entrepreneurial, though hopefully having seen the near bankruptcy of the electricity business in California ten years ago will make him a true believer in the campaign against bad regulation. But at least the leaders of corporate America have heard of him, which is more than could be said of the outgoing commerce secretary, Gary Locke.

Choosing a businessman, rather than a lawyer turned politician like Mr Locke, as commerce secretary is the latest in a series of moves by Mr Obama during the past year to repair relations with corporate America, which 12 months ago were frankly pretty awful. Wealthy bosses, not necessarily for the most public-spirited of reasons, welcomed his decision to extend the tax cuts introduced by George Bush. They were pleased that he showed more willingness to listen to them, rather than just pose for photographs, and noted that he had started to talk more about jobs, entrepreneurship, the cutting of red tape and the importance of manufacturing. Appointing well-known business leaders such as Jeffrey Immelt, boss of GE, and Steve Case, the founder of AOL, to advise him, respectively, on jobs and innovation also played well.

Of course, there are plenty of business people who dislike Mr Obama, dismissing him as a quasi-socialist, especially because of his health-care policies. But increasingly this seems more about politics than business. The critics are the overtly Republican sort of businessperson, of whom there are plenty, whereas the Democrat-leaning business leaders who a year ago feared they had backed the wrong man are coming back on side. Now if only Mr Obama can deliver those trade deals, two cheers from business may become three.

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Abortion

Pushing back

A broad movement to limit access to abortion is gathering steam

REPUBLICANS walloped Democrats in November, thanks to concern over big government, high taxes and a crippling deficit. Since then state leaders have worked to shrink wide budget gaps. Washington's politicians have debated the debt ceiling, fought over taxes and tried to scuttle "Obamacare". All this was expected. More surprising, there has been nearly as much activity around abortion. Indeed, this year's assault may be unprecedented.

The House of Representatives has passed many small bills and a few big ones, including "The No Taxpayer Funding for Abortion Act". State legislatures have been even busier. The Family Research Council, a Christian group, happily counts more than 400 abortion bills working their way through state capitals-Alabama's Senate recently passed five. The culture wars are back with a vengeance.

The Republicans' "Pledge to America", presented to voters last year, included a promise to bar public funding for abortions. In January John Boehner, the Republican speaker of the House, declared that limiting public funding for abortion was "one of our highest legislative priorities".

Federal funding for abortions is already banned. But conservatives want to do more. No federal money pays for abortions offered by Planned Parenthood, a women's health clinic. However Mike Pence, a congressman from Indiana, introduced a measure to bar federal money from paying for any of Planned Parenthood's services, such as contraception and standard gynaecological care. Mr Boehner himself was a champion of "The No Taxpayer Funding for Abortion Act". The bill would, among other things, ban abortion coverage from the new insurance exchanges, reviving one of last year's policy fights. Both bills passed the House. As long as Democrats control the Senate, neither will go further.

Abortion's opponents are not discouraged. "A lot of the time, the discussion happens on the federal level," says Tony Perkins, president of the Family Research Council. "The action is in the states." In November the Republicans won more state seats than in any election since the Depression. Republicans in Texas hold a majority in both chambers of the legislature, including a supermajority in the House. On May 24th the governor, Rick Perry, signed a measure that will require women to have an ultrasound before they have an abortion. Abhorrence for Planned Parenthood almost led to the elimination of all family planning services.

It is a rare year, however, when the hotbed of Texas seems relatively calm. Last year five states voted to restrict abortion coverage on new insurance exchanges; in the first quarter of this year 23 states introduced such bills, says the Guttmacher Institute, an advocacy group. Mr Pence's ban on money for Planned Parenthood may have failed in Washington, but Indiana signed a similar provision on May 10th. Kansas passed its own version and limited private spending too-a new law bars private insurers from covering abortions.

All this is not entirely new. Conservatives often introduce measures to limit abortions in one way or another. But this year is unusual, says Jennifer Dalven of the American Civil Liberties Union, an advocacy group. "The difference is that there are so many proposals," she explains, "and so many that are moving so far." Mr Pence's bill was a serious sticking point in talks over a government shutdown. Ms Dalven thinks that the scale of the states' actions is unprecedented.

The Republican victory in November has fuelled this frenzy. Broader cultural changes, however, may sustain the trend. Americans are split in their opinions over abortion, but support among the young is waning. In the early 1990s 36% of those aged 18-29 said that abortion should be "legal under any circumstances", according to Gallup. Today just 24% of young people support the statement, though they tend to be much more accepting of gay marriage. This year's surge against abortion may be just the beginning.

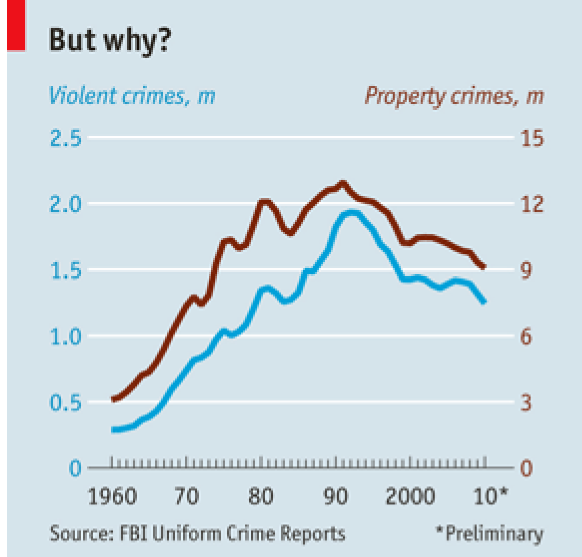
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America's falling crime rate

Good news is no news

Americans are committing fewer crimes, though nobody seems to know quite why





INTUITIVE theories are often easier to believe in than to prove. For instance: conventional wisdom says that the crime rate should rise during a recession. When people are out of work and out of money, the thinking goes, they turn to crime. But the evidence backing this theory is at best equivocal. There seem to be some links between crime and economic conditions, but they are neither as direct nor clear as one might assume. Crime rose during the Roaring Twenties then fell in the Depression. America's economy expanded and crime rates rose in the 1960s. Rates fell throughout the 1990s, when America's economy was healthy, but they kept falling during the recession in the early 2000s (see chart).

And during the current downturn, the unemployment rate rose as the crime rate fell. Between 2008 and 2009 violent crime fell by 5.3% and property crime by 4.6%; between 2009 and 2010, according to the preliminary Uniform Crime Report released by the FBI on May 23rd, violent crime fell by another 5.5% and property crime by 2.8%. Robberies-precisely the crime one might expect to rise during tough economic times-fell by 9.5% between 2009 to 2010. The decline in violent crimes was sharpest in small towns, where the rate dropped by more than 25%, and among regions sharpest in the South, which saw a 7.5% decline. Only two cities with more than 1m people-San Antonio and New York-saw their crime rates rise. And some perspective is warranted there: in 1991 around 2,200 people were murdered in New York. Last year just 536 were. Overall, America's violent-crime rate is at its lowest level in around 40 years, and its murder rate at its lowest in almost 50.

According to the social scientists, this was not supposed to happen. In 1995 James Wilson, who came up with the "broken windows" theory of crime prevention widely credited with making New York safer, warned that by 2000 there would be "30,000 more young muggers, killers and thieves than we have now. Get ready." One year later John DiLulio, another political scientist who studies crime, warned of a wave of "juvenile super-predators" wreaking havoc by 2010. Yet even as they wrote, the violent-crime rate had already begun to fall. Except for a bit of a rise from 2004 to 2006, it has fallen every year since 1991.

Although nobody predicted the striking decline in crime during the 1990s, in hindsight theories explaining it abound. Some give credit to smarter police tactics: particularly quantitative methods and "broken windows" policing. Others point to the increased availability of legal abortion in the 1970s, resulting in fewer children born to teenage, unwed and poor mothers: precisely the sorts of children who commit crimes at high rates during adolescence. There is also the waning of violence associated with the crack market, and the increased incarceration rate, which keeps more criminals off the street for longer (though at tremendous cost).

Although these factors explain the drop since the late 1980s, they do not explain the sharp drop in the past two years. For that Al Blumstein, a criminologist who heads the National Consortium on Violence Research, posits an "Obama effect", in which the election of America's first black president inspires a significant number of young black men away from violence. And indeed between 2008 and 2009, the numbers of blacks arrested for murder and robbery each declined by over 2%, though this theory has more narrative than evidentiary appeal.

Another theory concerns lead. Exposure to lead in childhood has been linked to aggression and criminal behaviour in adults. Jessica Wolpaw Reyes, an economist at Amherst College, argues that the decline in American children's exposure to lead since it was phased out of gasoline in the 1970s and removed almost entirely by 1985, accounts for much of the decline in violent crime in the 1990s. It may account for even more, as more of America's unleaded children enter adolescence and their early 20s. And then there are those perennial bogeymen, video games and the internet, affordable forms of entertainment that keep people inside, and away from real crime and drugs.

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Arizona's conservatives

Extreme recall

A conservative suburb of Phoenix sends a message about overkill



The tough get going

CITIZENS for a Better Arizona, a group in Mesa, near Phoenix, this week submitted more than 18,000 signatures to recall their district's state senator, Russell Pearce. That is more signatures than the votes Mr Pearce won last November when he was re-elected, and far more than the 7,756 necessary for a recall-forcing him to defend himself in a special election-even allowing for some invalid ones. This is much more than a local sideshow: Mr Pearce is not just a member of the state Senate but its president. His recall would be the first of a Senate president in American history.

The symbolism may go even further, for Mr Pearce has become something of an embodiment of right-wing politics. A Republican and a Mormon from a city, Mesa, that has lots of both, he shot to fame last year after sponsoring SB1070, a state law that would, among other things, require local cops to enforce federal immigration laws whenever they suspect an individual of being in the country illegally (which, critics argue, would force them to go after people who look Mexican). A federal court has blocked most of the law, pending a decision by the Supreme Court this year.

But Mr Pearce's efforts have ranged far beyond SB1070. He was also one of the sponsors of another law against illegal aliens, upheld by the Supreme Court on May 26th, which allows the state to revoke the business licences of companies that employ undocumented workers. He has also tried to keep illegals out of emergency rooms, schools and universities. Aside from illegals, he also wants to balance the state budget by cutting health care for old and disabled people, to let faculty carry concealed weapons on university campuses, and to privatise state parks and airport security checks. He wants Arizona to have the right to nullify federal laws (which his opponents call "secession"). And so forth.

The effort to recall Mr Pearce grew out of a sense that this is all too much. Increasingly, Arizonans are fed up with national notoriety. In southern Arizona, some are talking about forming their own state to show dissent. In Mesa, a group called East Valley Patriots for American Values is trying to import from Utah a "compact", or pledge, to deal humanely with illegal immigrants. Those now trying to recall Mr Pearce include Democrats and Republicans, Mormons and others, says Randy Parraz, one of the campaign's organisers.

Their chosen mechanism, the recall, is largely a peculiarity of "direct democracy" in the American West. Critics ask why voters need to recall somebody they can simply vote out of office in the next regular election. A successful recall would indeed simply force an earlier election-either this November or next March, depending on how quickly the signatures are verified. Mr Pearce would presumably run in that election, against an opponent who has yet to step forward, and might win. However all this turns out, says Mr Parraz, voters in Mesa "want to make a statement." They have certainly done that.

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Criminal justice

Leave no veteran behind

A special court tries to keep troubled veterans out of prison

MAY 30th was Memorial Day, when Americans remember those who died serving in the armed forces. Military graves were decorated with flags. Soldiers and sailors marched in parades honouring the fallen. Unfortunately, living veterans are having a tough time. Unemployment among veterans who have served since 2001 is higher than for non-veterans. Veterans make up 20% of all suicides. Nearly a fifth of the homeless population in the United States are veterans. Substance abuse is pervasive. Many more have mental-health problems, which often lead to criminal behaviour. Robert Russell, a judge in Buffalo, New York, after noticing an increasing number of veterans on his docket, in 2008 created the first court specialised and adapted to meet the needs of veterans.

Every Tuesday, Mr Russell presides over "Veterans Treatment Court", a hybrid of drug and mental-health courts. It aims to divert people from the traditional criminal system. It provides veterans suffering from substance abuse, alcoholism and mental-health issues, with treatment, support, training and housing.

Each veteran is assigned a mentor, also a veteran from the same service, who acts as a coach and, if need be, an "ass-kicker". If the veterans follow the programme's regimen, which involves regular court appearances, mandatory drug treatment and testing, they could see their charges reduced or dismissed and they could stay out of jail.

Military folk like structure and will follow a good commanding officer anywhere. The troubled veterans seem to want to make the paternal Mr Russell, who never served in the military, proud of them. One, who is going to college, was so chuffed with a recent 97% grade that he brought in the paper to show the judge. Mr Russell was equally proud and asked if he could keep the essay. Another, nearing the end of the programme-which takes at least a year, often two-was given a hearty handshake and a standing ovation by the judge.

To date there has been no recidivism among those who have completed the Buffalo programme. Other jurisdictions are taking notice. Since Buffalo's veterans court began in January 2008, 70 other courts have launched across the country. A dozen more are in the works; almost 2m veterans will be coming home from Afghanistan and Iraq.

Lexington

Magical mystery Palin

A beaming and unpredictable problem for the Republican Party



LOVE her or loathe her, you have to give this to Sarah Palin: she is indeed "Going Rogue". Having been all but counted out as a serious presidential contender for 2012, she changed all that on Memorial Day, rumbling over Memorial Bridge on the back of a Harley ("I love that smell of emissions"), svelte in black leather amid a sea of pot-bellied Vietnam veterans biking into the capital for their annual "Rolling Thunder" commemoration. Is she genuinely running? Nobody knows-including, if you take her at her word, the lady herself. "There truly is a lot to consider before you throw yourself out there in the name of service to the public," she told reporters who caught up with her "One Nation" bus the next day near Gettysburg. The Republican field was strong, she said, but not yet set-"not by a long shot".

And that bus. What is it, exactly? Hardly the traditional campaign bus on the lines of John McCain's Straight Talk Express, which groaned under the weight of well-buttered-up hacks. Apart from a chum from Fox News (for which Mrs Palin works herself), there is no media pack on board. The media are not told where she is travelling, learning from her SarahPAC website only that the former governor will be meandering with her family through New England "to educate and energise Americans about our nation's founding principles". But the bus is hardly designed for privacy either, decked out as it is with stars and stripes, the Liberty Bell and the constitution, and, in giant letters against a glorious mountainscape, Mrs Palin's own flowing signature. By hook, crook and presumably her own design, the media have caught up with her at every stop, where she smiles and giggles and is coy, but invariably finds something newsworthy to say, and by doing so keeps a nation guessing.

Unlike many Republican candidates, Mrs Palin can afford this slow dance of the seven veils. For ordinary candidates, job one is telling Americans who you are. Her fling as Mr McCain's running mate in 2008 has made her famous already. Since 2008 she has morphed into a television celebrity and author, quitting her job as Alaska's governor and adding a fortune to her fame. She is to be the subject of a two-hour movie, "The Undefeated", which compares her to Joan of Arc and is due to premiere soon in Iowa, which happens to be the first state to hold its caucuses. Her bus is expected to find its

way to Iowa, too, where she will no doubt encounter the fans and reporters who greet her wherever she goes. Granted, she is not always welcomed by everyone: though many of the veterans said they were happy enough to have her along, Ted Shpak, Rolling Thunder's spokesman, grumbled that nobody had asked her to muscle in on the bikers in Washington.

You can wager that the inner rage of the Republican field far exceeds Mr Shpak's. Mrs Palin's magical mystery tour has put a hideous dent in many of their best-laid plans. Take poor, rich Mitt Romney. Having worked in his dull and methodical way to the head of the race, he intended to make his long-assumed candidacy formal this week. And yet for some reason the media seem keener on pursuing their Alaskan Pimpernel than covering the grey man's big speech in New Hampshire. Michele Bachmann, the congresswoman from Minnesota and darling of the tea-party movement, is about to declare her candidacy from Iowa. Now the other darling of the tea-party movement is stealing her thunder without even troubling to say that she is running. Tim Pawlenty had reason enough to fear Mrs Bachmann's appeal to the social conservative voters he is aiming for without Mrs Palin fishing from the same pool. "I want to make it very clear: I consider Governor Palin a friend," says Mrs Bachmann. You betcha.

It may well be that Mrs Palin's tour is intended only to titivate the celebrity on which her income depends. Those who think she is bluffing note that she has done none of the customary preparation. She has not hired a campaign team or glad-handed local supporters in the early-voting states. This, however, is to make the mistake of judging Mrs Palin by the standards of conventional warfare. She sees herself more as a guerrilla, adept in the arts of asymmetric warfare.

Watch your flanks

If she does run, says Mrs Palin, her campaign "would definitely be unconventional and non-traditional". Even a media-savvy rogue on a Harley will find it difficult to tear up all the old rules of primary elections. But Facebook and Twitter are changing politics in America as well as the Arab world. Politicians no longer depend on party panjandrums and the gatekeepers of the media to raise money and get their message out. Many Americans doubt whether Mrs Palin is qualified to be president. But she has a big name, avid followers and the ability to raise money. There is a chance, however small, that she could win the nomination.

In which event, Democrats might well be the first to celebrate. Polls suggest that Barack Obama would trounce her by almost 20 percentage points (Mr Romney trails the president by less than 7%). So it is not only her immediate rivals but also the Republican establishment who have cause to worry. What if she is another Barry Goldwater, who wowed the right but led the Republicans to a crushing defeat by Lyndon Johnson in 1964?

The trouble is that Mrs Palin is not the sort to step aside just because people tell her she cannot win. She thrives on rejection. Twitting intellectuals and the "lamestream" media is part of her brand. She harbours a grudge against the Republican "blue-bloods" who blame her for Mr McCain's failure to beat Mr Obama in 2008, and would love to prove them wrong. She may not be able to win the presidency herself, but so long as she stays in the headlines, hinting at a run, she makes the party's sobersides look dull by comparison. For them, the phenomenon from Alaska has gradually mutated into the problem from hell.

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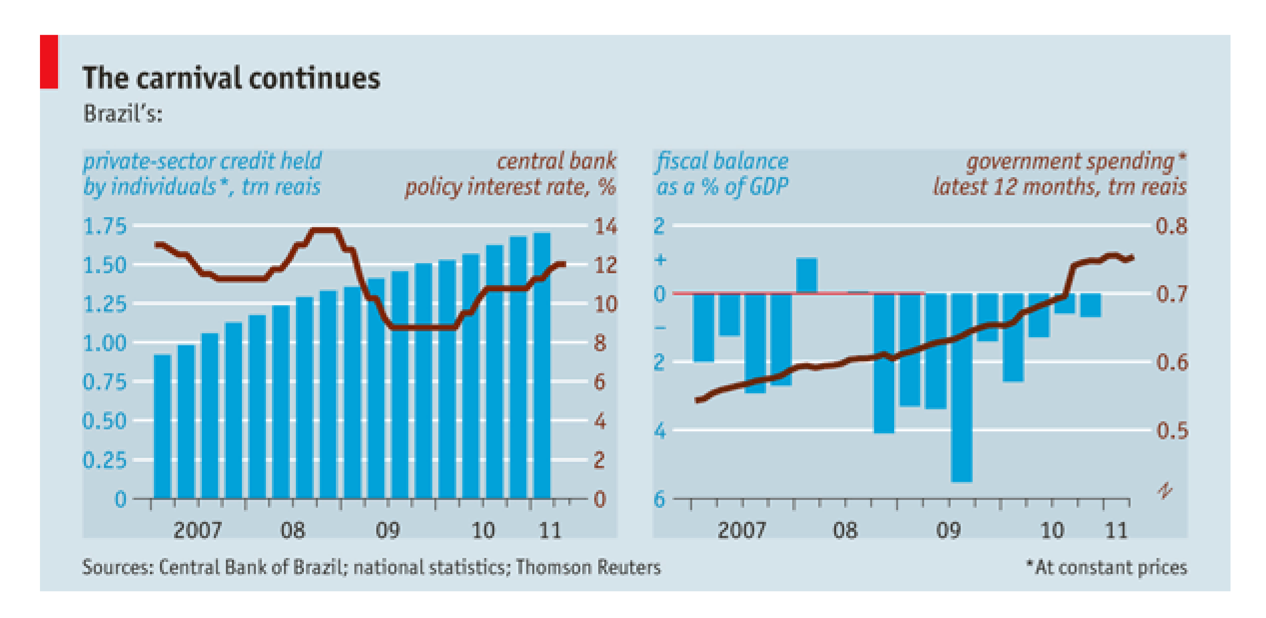
Brazil's president

Dilma's first big test

The political wounding of Antonio Palocci, the president's right-hand man, comes at an awkward time, when the battle to cool the economy has only just begun



THE honeymoon Dilma Rousseff has enjoyed since becoming president of Brazil on January 1st has suddenly ended. She faces a modest but steady and damaging rise in inflation. She must push through unpopular measures to cool the economy and sustain growth in the medium term, and to fulfil her promise to make the state more efficient. Her vast but disparate coalition in Congress is showing the first signs of political infighting. Her difficulties are embodied in the travails of the man appointed to manage the politics of this economic balancing act, Antonio Palocci, her chief of staff.



Last month the *Folha de S. Paulo*, a newspaper, published confidential information showing that between 2006 and 2010, when Mr Palocci was a federal congressman, his personal wealth rose 20-fold as a result of consultancy work. Elected politicians in Brazil are allowed a business sideline. Mr Palocci refuses to give details of who paid him, or for what, on the grounds of client confidentiality. His enemies insinuate that it was not his political insights that were worth so much, but his influence and connections. His business dealings are now being investigated by the public prosecutor's office.

As finance minister during the first presidential term of Luiz Inacio Lula da Silva, Ms Rousseff's predecessor and political mentor, Mr Palocci imposed the fiscal austerity that transformed his boss from socialist firebrand into darling of the financial markets. In 2006 he was forced to resign after claims, never proven, that he had leaked the bank records of a concierge who had told the press of his presence at a house in Brasilia where orgiastic parties were held by his political associates. But Mr Palocci retained the respect of businessmen and investors, and remained influential within the ruling Workers' Party (PT). Restored to government by Ms Rousseff, his job has been to do much of the arm-twisting that is essential in Brazil's coalition politics.

His political wounding has already hurt the president. On May 24th all but one of the 73 lower-house deputies of the catch-all Party of the Brazilian Democratic Movement (PMDB), the PT's main coalition partner, voted for an amendment to a new Forestry Code to grant an amnesty for illegal logging before 2008. That went against Ms Rousseff's express

wishes, and was a defiant challenge to Mr Palocci, who had threatened the party with ministerial sackings should its deputies rebel. The PMDB's barons were already displeased with what they regarded as a meagre clutch of ministries and other important jobs in Ms Rousseff's government, but had hitherto toed the line. The following day evangelical and Catholic politicians obliged the government to scrap plans to show videos with an anti-homophobic theme to school pupils, threatening that they would otherwise back calls for a congressional inquiry into Mr Palocci's sudden accession of wealth.

All this comes after a bout of pneumonia kept Ms Rousseff out of the public eye for much of May. Into the vacuum leapt Lula, after he concluded that a telephone call from the president asking for advice was really a cry for help. He appeared in Brasilia for two days of shuttle diplomacy with coalition partners and rank-and-file PT legislators. That made Ms Rousseff look incapable of standing on her own two feet-a dangerous perception for a female boss in a country with very few of them.

The immediate worry is that all this could water down or delay the measures needed to cool an overheating economy. Even though the real has been appreciating to a level that is uncomfortably strong for manufacturers, the inflation rate has steadily been edging up. It has risen from 4.2% in October 2009 to just over 6.5% in April, when it breached the ceiling of the Central Bank's target. In the same month the price of services was 8.6% higher than a year before. Bank credit rose by 21% during the same 12 months, well above the 10-15% increase the Central Bank regards as comfortable. Most economists think unemployment, at 6.4%, is so low that rising wages are pushing up inflation.

Ms Rousseff's government is trying to slow the economy, but gently. The Central Bank has raised its benchmark rate three times this year, taking it from 10.75% to 12%. But it remains much lower than in mid-2008, when the bank last applied the brakes. The government has also imposed a clutch of new taxes on lending and stricter reserve requirements. But big banks say they still expect their lending to expand by another 15-20% this year.

The president has ordered a fiscal tightening: the primary surplus (ie, before debt payments) has risen to 3.3% over the first four months of the year, up from 2.2% in the same period last year. But that is mainly because of robust tax revenues. Government spending is still 13% higher than a year ago in nominal terms, and the squeeze has fallen mainly on public investment, rather than on civil-service payroll costs or other current spending.

The main hint of a slowdown has come from an unexpected dip in industrial production in April. But that probably reflects the impact of the strong real. The risk is that once inflation starts to pick up in Brazil it becomes entrenched, argues Marcelo Carvalho of BNP Paribas, a bank. "Then you end up having to hike rates hard and squeeze government spending for a long time to get it back under control."

Ms Rousseff has promised to do "whatever it takes" to control inflation. She knows that much of Lula's enduring popularity came from the fact that his governments managed to combine economic stability and faster growth. Their policy discipline relaxed only in 2010, when economic growth of 7.5% helped to get Ms Rousseff elected. The corresponding political calculation is that bearing down hard on rising prices now would be far better than an involuntary squeeze closer to the next presidential election in 2014.

For months the economic analysts polled each week by the Central Bank have been forecasting ever-higher inflation for 2011. Over the past few weeks the predicted number has started to fall (and most now expect economic growth of only 4% this year). But the public is much less sanguine than the experts. According to a poll by the National Confederation of Industry, published on May 30th, the share of Brazilians who think that inflation will rise further in the coming months has reached 71%-higher than at any time since 2001. The poorest are most pessimistic. With or without her right-hand man, Ms Rousseff will have to act decisively if these expectations of inflation are not to become a self-fulfilling prophecy.

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Peru's presidential election

No lesser evil

Voters find it hard to choose between Keiko Fujimori and Ollanta Humala



Smiles of moderation that strain credulity

EIGHT weeks is an unusually long time for the campaigning in a run-off election. It has been long enough to polarise Peru and to create some unusual political bedfellows. But it has not established a clear winner in the vote on June 5th, nor thrown much light on the prospects for the country's democracy and its economic boom in the coming years.

The last opinion polls before a pre-election ban on their publication, placed Keiko Fujimori, the daughter of a former president, and Ollanta Humala, a nationalist former army officer, within a point or two of each other. Both are populists with weak democratic credentials; they benefited from the dispersal of the centrist vote among three defeated candidates. Both are trying hard to seem moderate.

Ms Fujimori's father, Alberto, is serving a 25-year sentence for authorising a death squad that killed 25 people when, as Peru's president between 1990 and 2000, he defeated the Shining Path, a Maoist terror group. He allowed his spy chief, Vladimiro Montesinos, to run a systematic corruption racket. But Ms Fujimori is evoking her father's liberal economic reforms which rescued Peru from economic collapse and laid the foundations for today's boom. She promises to stick with investor-friendly policies. She has backed away from an earlier pledge to pardon her father, saying she would respect the decisions of the courts. And she admits that "mistakes" were made by her father's government, in which she acted as first lady after her parents separated.

As for Mr Humala, he led a military rebellion when an army officer. In 2005 he publicly backed an armed uprising staged by his brother against Alejandro Toledo, a democratic president. Two years later he ran for president as an admirer of Venezuela's leftist leader, Hugo Chavez. Now he claims to support Brazil's social-democratic policies. Last month he unveiled a new, moderate programme, swearing on the Bible not to alter the country's political and economic framework. He has dropped earlier talk of nationalisation, or of blocking exports of natural gas, and he has recruited economists who worked for Mr Toledo.

That prompted Ms Fujimori to ask Mr Humala in a campaign debate on May 29th which of his "four different plans" he believes in. Nevertheless, her campaign has echoed Mr Humala's pledges to levy a windfall tax on mining companies and give Andean Indian communities veto rights over mining and oil projects on their land. Both candidates promise free child care and school meals, as well as student grants and minimum pensions.

Mr Humala has the support of those who hate Mr Fujimori. Local human-rights groups have campaigned for him, ignoring their own past claims that as an army officer he personally murdered peasants and then bought off witnesses (charges he denies). Mario Vargas Llosa, the winner of a Nobel prize for literature and a passionate liberal, has given an energetic endorsement to a man whose politics he recently abhorred. Mr Vargas Llosa, who lost a presidential election to Mr Fujimori in 1990, argues that a triumph for Ms Fujimori would be a symbolic victory for "the worst dictatorship in Peru's history". Some of Mr Vargas Llosa's closest friends, such as Fernando de Szyszlo, the country's best-known painter, say he is wrong to trust in Mr Humala's rebirth as a moderate.

Ms Fujimori has the support of many businessmen and the near-hysterical backing of Peru's main media organisations, even though in her father's time Mr Montesinos extracted bribes from business and bullied the media. She has strong popular support in Lima, the capital, and the coast, which have benefited most from the economic boom, whereas Mr Humala has many supporters in the still-impoverished southern Andes.

Mr Humala won 31.7% in the first round against 23.6% for Ms Fujimori, but that lead soon evaporated in the polls. The result may turn on whether the 14% or so who tell pollsters they cannot bring themselves to vote for either candidate change their mind (another 6% are still undecided). Whoever wins, Peruvians may end up having to defend their democratic institutions themselves.

Colombia's victims law

Feeling their pain

An attempt to heal past wounds



What price a life?

THROUGH much of Colombia's sad history of bloody partisan wars followed by ruthless narco-terrorism, insurgency and counter-insurgency, victims of one generation have tended to beget further victims in the next. Only a few of those who lost limbs, relatives or land received much recognition. A sweeping new law, approved by the Congress on May 24th, aims to change that. If fully implemented, it will offer compensation, in various forms, to some 4m people who have suffered in the country's armed conflicts.

The attorney-general's office has documented 176,618 murders committed by (now-demobilised) right-wing paramilitaries or by left-wing guerrillas, going as far back as 1985. It has also logged 35,549 cases of forcible disappearance since 1981. The law also covers murders of civilians by rogue elements in the armed forces.

Juan Manuel Santos, the president, hopes that the law will mark a break with that past by healing its wounds. He went in person to Congress last year to present the bill. But its passage involved much debate. Mr Santos's predecessor, Alvaro Uribe, although nominally an ally, opposed the bill. He argued that members of the armed forces should not be treated in the same way as guerrillas or paramilitaries.

Mr Uribe also objected to the bill's use of the term "internal armed conflict". During his eight years in office, in which he dramatically improved security by expanding the police and armed forces, he always referred to a "terrorist threat". Mr

Santos's rejoinder was that recognising the existence of a conflict did not amount to giving the FARC, the main guerrilla force, belligerent status. He won the argument.

The law will offer financial compensation to victims or surviving close relatives. It also endeavours to restore the rights of millions of people forced off their land-some 6.6m hectares (16.3m acres) of it since 1991, the government estimates. There will be symbolic reparation for torture survivors, former hostages and victims of sexual abuse. A new bureaucracy will deal with claimants.

Putting all this into practice will be daunting and expensive; it will cost between $550m and $800m a year over the ten years the law will be in place, officials reckon. Special courts will be set up to settle land disputes: landholders will now have to prove they acquired their land legally. Even this is not enough for the opposition Alternative Democratic Pole; it will ask the Constitutional Court to include cases dating further back.

Reparation normally comes at the end of a conflict. Colombia's continue, though they are waning. The FARC remains a threat in some parts of the country, while new criminal bands-mostly dedicated to drug trafficking-continue to drive peasants from their land. Recognising this, the law will apply to fresh victims until 2021.

On the same day the law was approved, the defence minister, Rodrigo Rivera, unveiled a new security strategy that aims to break up criminal gangs, cut the area under coca by a third, and bring about the "implosion" of the FARC, all by the end of Mr Santos's term in 2014. This is the first government that can propose to "finish off these structures, not just reduce them," Mr Rivera said. Put that together with the victims law, and if all goes well there will be no means, and no earthly reason, to carry on fighting.

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Jamaica and the United States

No visa, do cry

An American diplomatic weapon

IN THE Caribbean being barred from flying to Miami can spell social shame and political oblivion. The latest to be ostracised was James Robertson, who resigned as Jamaica's energy and mining minister last month, four days after being told that his visa for the United States had been revoked. The reason, he said, was that a fellow Jamaican had told a Florida court that Mr Robertson conspired with gangsters to have him killed (he denies the allegation).

Almost 5% of Jamaica's population of 2.7m applies for an American visa each year; around half are successful. An American diplomatic cable from 2005, made public through WikiLeaks, admitted that the potential loss of a visa is "a source of considerable leverage" and suggested this could be used to press Jamaica's then prime minister to act against corruption. Another cable, from 2007, said that the current premier, Bruce Golding, had asked for help in identifying corruption in his party.

Early last year, when Mr Golding was still stalling on extraditing Christopher Coke, a drug trafficker, several prominent Jamaicans had their visas revoked. Many others feared they would be next and blamed their government. A year ago Mr Golding sent the security forces in to Mr Coke's stronghold; he was duly extradited after 73 people were killed.

Guyanese officials have thicker skins. Ronald Gajraj clung to his job as home minister for a year after losing his American visa in 2004, amid claims of a police death-squad. Guyana's current police commissioner was promoted after suffering a similar fate in 2006. But American officials realise they have a cheap and useful weapon. "There is more to come," one told the *Jamaica Observer*.

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Thailand's politics

Thaksin's last stand

Victory in July's elections would bring back Thailand's most divisive figure



IN ONE form or another, Thaksin Shinawatra has been in the thick of Thai politics for a decade. Since September 2006, when the two-term prime minister was ousted in a coup, he has had to rely on proxies to fight his corner. And so, on July 3rd, Mr Thaksin's youngest sister, Yingluck Shinawatra, will be his stand-in when Thais vote in the first national election since December 2007.

The timetable has quickened the pulse at Mr Thaksin's luxury villa in Dubai. Behind heavy curtains, he receives important guests and hosts syrupy videoconferences with rank-and-file supporters back home, the so-called red shirts. Their demonstrations paralysed central Bangkok last year. The army eventually put down the protests, with 92 killed. It sharpened the divisions between those who love and loathe Mr Thaksin.

The red shirts' battle cry was for new elections. Now that the prime minister, Abhisit Vejjajiva, has dissolved parliament, some wonder if the process might somehow be derailed. The ultranationalist, and anti-Thaksin, yellow shirts have called for an appointed royalist government to clean up politics. Asked about coup plots, military chiefs serve up boilerplate denials, just as they did in 2006.

Mr Thaksin seems unruffled by such talk. Elections will go ahead, he insists, and Pheu Thai, the party led by Ms Yingluck, should win a clear majority, assuming no electoral hanky-panky. With victory, Mr Thaksin says, Pheu Thai would invite smaller parties into a coalition government, to be the "ferns" in a "beautiful" flower arrangement.

For Thailand's royalist generals, a victory for Mr Thaksin is an unpleasant prospect. Many red-shirt leaders want to punish those who ordered and carried out last year's crackdown. Pheu Thai aims to amend the current constitution, drafted under military rule. It pledges to repatriate Mr Thaksin as part of a political-amnesty scheme. Mr Thaksin has told supporters he will return in November. "And when I say something, I mean it."

For now, though, he is a fugitive from Thai justice. A two-year jail term awaits him in Thailand, passed in absentia for corruption. Mr Thaksin complains that he has been "bullied politically", and subjected to "Mickey Mouse" court cases. Yet he claims he is ready to forgive, if not forget.

His opponents will need more convincing. After all, Mr Thaksin is widely seen as having fomented violent demonstrations and arson attacks in Bangkok (he insists that protesters were peaceful until provoked). He has many powerful enemies,

including in royal circles. Any attempt at a compromise between Thailand's warring factions, which go beyond a simple red-yellow divide, is that much harder with Mr Thaksin on centre court.

Some Thaksinites recognise this dilemma. A Pheu Thai-led government would need to build consensus around an amnesty proposal and pass the legislation "at the right time," says Phongthep Thepkanjana, once a justice minister under Mr Thaksin. He draws a parallel with pardons granted to Communist rebels in the 1980s, including some with murder raps. Military and civilian officials behind last year's crackdown could be covered so as to win cross-party support.

Yet the devil will be in the details. An amnesty for protesters jailed for minor offences is one thing. But if Mr Thaksin's allies try to commute his conviction by executive decree or similar manoeuvre, resistance would come from the courts and, inevitably, from the streets.

On the stump, Mr Abhisit chides Pheu Thai for focusing solely on the past and working to exonerate Mr Thaksin. No doubt some voters are turned off by Pheu Thai's relentless emphasis on Mr Thaksin and on the starring role of his telegenic sister, whom he describes as his "clone". Still, plenty of others believe Thailand was better off when he was in charge.

Before he went into politics, Mr Thaksin made a fortune in telecommunications. He still smarts over the Supreme Court's confiscation last year of 46 billion baht ($1.5 billion) from the sale of his family-owned Shin Corp in 2006 to Singapore's Temasek Holdings. The military junta froze the proceeds after seizing power that year.

Yet the same court ruled that the remaining 30 billion baht from the sale belonged to Mr Thaksin. Indeed, this money has been transferred to his family's accounts in Thailand. He is busy investing in African minerals and says that he plans to list these assets. He has a private jet and a cadre of devoted staff. Life is not so bad in exile. But it cannot compare to the pull of a political comeback at home.

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Unrest in China

No pastoral idyll

Turbulence in Inner Mongolia makes managing China no easier



Stand-off in Inner Mongolia's mean streets

"THIS is a time when social contradictions are becoming conspicuous in our country," China's ruling Politburo concluded at a meeting on May 30th. As they were gathering, security forces in Inner Mongolia, north of the capital, were clamping down on the province's biggest outbreak of ethnic unrest in decades. Elsewhere, messages of sympathy were pouring in from Chinese internet users for a man who had bombed government targets in the south of the country, killing himself and two others. Rightly, the Politburo noted that the task of "social management" in China was getting harder.

Inner Mongolia had long been regarded as among the tamest of China's ethnic-minority regions. Even after the eruption of widespread protests and riots on the Tibetan plateau in 2008, and bloody inter-ethnic clashes in Urumqi, the capital of Xinjiang province, the following year, Inner Mongolia remained calm. More ethnic Mongols live in the Chinese province than over the border in independent Mongolia. Even so they form less than a fifth of Inner Mongolia's 24m people, outnumbered by Han Chinese. Unlike Tibetans or Uighurs in Xinjiang, many Mongols have little if any mastery of their ancestral language.

Chinese leaders must therefore have been shocked when protests broke out in a handful of Inner Mongolian towns over the course of several days in late May. Not since the Tibetan unrest had ethnic disturbances spread so quickly. They were sparked by the apparent hit-and-run killing on May 10th of a Mongol herder by a Han Chinese lorry driver. The Mongol was among a group of herders who had been trying to stop lorries cutting across their grasslands to reach a coal mine. Four days later another Mongol was killed in a similar confrontation elsewhere.

No doubt to the authorities' relief, the protests did not involve inter-ethnic violence of the kind that rocked Urumqi, in which nearly 200 people died, or that sent Lhasa up in flames when Tibetans burned or ransacked Han-owned businesses. But the prominent role that students played would have alarmed them (students led the Tiananmen Square protests of 1989). The authorities have this year been fearful that young Chinese helped by the internet might seek inspiration from the Arab world to try fomenting a "jasmine revolution" in China. In a huge security operation encompassing several Inner Mongolian towns and the regional capital, Hohhot, the police have confined students to campuses. In spite of this, about 150 people marched through Hohhot on May 30th, chanting slogans in Mongolian. Sina Weibo, a popular microblogging service in China, has now added "Inner Mongolia" to "jasmine" on its long list of banned search terms.

The name Qian Mingqi is not yet on the blacklist, but may be before long. After Mr Qian detonated three bombs on May 26th in Fuzhou, Jiangxi province, many microbloggers have been remarkably supportive of the killer. Mr Qian (through a Sina Weibo account) had long complained of mistreatment by the authorities when his homes were demolished to make way for road construction. His home-made bombs targeted the prosecutor's office, the city government headquarters, and the food and drug administration.

The government's response to unrest is not always hard-knuckle. Though they deployed many police and paramilitary troops in Inner Mongolia (while keeping out journalists and disrupting mobile internet access), the authorities have shown a little more sensitivity to protesters' concerns than they did in Tibet or Xinjiang. The region's party chief, Hu Chunhua, met students and teachers in Hohhot, promising justice on behalf of the aggrieved herders. (Though the protest leaders should not expect leniency.) Now the government says it will overhaul the coal industry for locals' sake.

Although the security forces have stepped up their attacks on government critics this year, arresting many, signs of disagreement are growing within the Communist Party over the best path to long-term stability. A recent series of commentaries in the party's mouthpiece, the *People's Daily*, has struck a surprisingly moderate tone. One, on May 26th, said that the only way to safeguard stability was to "protect rights". If anyone in the Politburo believes this, however, they are not yet speaking out.

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Nepal's changing state

Attitude sickness

Nepalis grow impatient, as their leaders fiddle



The parliament at work

A GAGGLE of protesters in Kathmandu, Nepal's fume-filled capital, want a Himalayan summer to follow the Arab spring. Organised via Facebook, young and dapper professionals meet outside the Magic Beans coffee house to clap, call for a constitution and condemn the wretched performance of their country's leaders. "Our politics is a kind of a disease," one of them grumbles.

The bankers, lawyers and university students complain that politicians are too busy horse-trading, pocketing public funds or theorising to bother with ruling. It certainly looks that way. Parliamentarians took 17 attempts over seven months merely to vote in a government in February. Then on May 28th they agreed to put off for another three months a much-delayed effort to write a new constitution. As a result, the prime minister, Jhalanath Khanal, who has only just been installed, is poised to quit, restarting the dreary merry-go-round of forming a government.

A diplomat laments that the place has been as good as leaderless for more than two years, as politicians fail to agree on how to run things. Yet matters could be worse. A decade ago a drunk and lovelorn prince wiped out most of the royal family, long a powerful political force, in an after-dinner massacre. And it is only five years since Maoist revolutionaries gave up a ten-year-long rebellion that killed 13,000.

The Maoists remain popular. They swept a 2008 election and retain both a standing army and support among poorer Nepalis. Their demands for social change and for curbing the dominance of a Hindu upper-caste elite through political restructuring (and eventually land reform) form the basis of efforts to draft the constitution. But progress on these scores has been slow. It has taken a constituent assembly two years merely to agree on a name-the "Constitution of Nepal"-to describe the thing it is trying to write.

All the same, profound shifts are quietly under way. The one-time kingdom has become a secular republic, dumping both its authoritarian monarchy and its previous designation as a Hindu state. The Maoists, in turn, have knocked off the sharpest edges of their leftist ideology, and now accept broad liberal values for the constitution, such as the separation of powers, an independent judiciary, competitive democracy and the right to private property.

Just two real sticking-points remain over the constitution. The Maoists want Nepal to have a powerful and directly elected president, whereas much of the political establishment wants the president constrained by a parliament. And, although practically everyone wants a federal system that will devolve powers to local bodies among Nepal's 30m people, they disagree over the number, and nature, of the new provinces. The Maoists want ten or more, but their opponents, such as

the Nepali Congress, insist on fewer, perhaps half as many, to discourage separatism among the country's 103 ethnic and 93 language groups.

These differences are not insurmountable. Meanwhile, at least Nepal enjoys relative calm. Nobody dreams of a return to war. Nor did the sky fall when United Nations monitors were sent home in January. The main blockage to more rapid political change is a practical one: what to do with the Maoists' soldiers, some 19,000 of whom still have access to their guns while they squat in camps. Around half will be paid off and sent home (or they will go off to join the millions of Nepalis toiling abroad). The rest will get jobs within a new paramilitary force in conjunction with the Nepali army and police.

The chief question is when. Donors will fund the process, but the Maoist leader, Prachanda (whose real name is Pushpa Kamal Dahal), is hanging on for a big sop. He seems to expect another spell as prime minister, perhaps in time to oversee the next general election, so as to be able to persuade a hardline faction to get behind the disbanding of the Maoist army.

That, in turn, infuriates India. Its diplomats complain of a few thousand gunmen holding up the whole peace process. India hates any idea of pro-China leftists returning to office across the border, especially given its own struggle against Maoist-branded insurgents at home. Yet many Nepalis, even well-heeled protesters in Kathmandu, say they would prefer any government to more stagnation.

They are impatient for Nepal to import the booms enjoyed by the giants on each side, China and India. The local economy plods on, growing at about 3.5% a year (though a vigorous black-market economy goes unmeasured). Some local businessmen claim Nepal is on the threshold of great things. Aid and remittances fuel consumption and a building boom. Since 1980 Nepal has made more gains in education and health (measured by the UN's Human Development Index) than any other country. Add stability and clearer rules for investors, and money could pour in for hydropower, food production, and services for a young and urbanising population. That sounds appealing-if only politicians would get on with making it a reality.

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Murder in Pakistan

A dark place

For someone, Syed Saleem Shahzad's exposes were too close to the bone



He thought this might happen

WHEN his family found Syed Saleem Shahzad two days after he went missing from Islamabad on May 29th, the prominent Pakistani journalist had already been stuffed into the ground. Once exhumed, his body bore torture marks. He appears to have died from blows to the chest. After death his clothes had been changed and his corpse first dumped in a canal in Mandi Bahauddin, two hours' drive from the capital.

Suspicion over his death falls strongly on Pakistan's Inter-Services Intelligence directorate (ISI), the army's powerful spy agency. It is not just that the manner of his disappearance carries shades of ISI methods. Mr Shahzad himself often feared the ISI would finish him off. He expressed those concerns in an e-mail to Ali Dayan Hasan, a Pakistan-based researcher for Human Rights Watch. He described frequent run-ins with the ISI to this correspondent over a recent dinner. The ISI vehemently denies any involvement in Mr Shahzad's fate.

Mr Shahzad, a father of three, wrote for *Asia Times Online* and Adnkronos International, an Italian news agency. He had extraordinary contacts with Islamic extremists, including the Taliban and al-Qaeda. No journalist matched his access, which produced interviews with jihadist commanders in their hideouts and many stories about the inner workings of al-Qaeda. It is possible that the violent, fractious underworld of extremism in Pakistan had turned on him. But his reports were also a frequent embarrassment to the Pakistani army. Mr Hasan says the onus is on the ISI to show it was not holding him in illegal detention and that its people were not responsible for his death.

Mr Shahzad's last story for *Asia Times Online* was about al-Qaeda's infiltration of the Pakistani navy. It was published in the wake of a devastatingly brazen assault on a naval base in Karachi in mid-May. Mr Shahzad wrote that it was al-Qaeda who carried out the attack, partly in revenge for the raid by American special forces that killed Osama bin Laden a month ago, but mainly because of the navy's refusal to release servicemen arrested on suspicion of al-Qaeda links. Jihadist sympathies in the country's armed forces have become a deeply sensitive issue. The army deals secretly with its own extremists, without ever admitting to a problem. As for Karachi, it is the chief port of supply for the NATO-led war in Afghanistan. Al-Qaeda infiltration there would mean a new threat to supply lines.

Whoever kidnapped and beat Mr Shahzad may not have intended to kill. Last year, he was shot in the stomach following an altercation with a security guard, and he had recently been injured in a car accident. His health might have been delicate. Yet his murder has sent a chill through media and civic-minded circles. Reporters without Borders, an international NGO, cites Pakistan as the most dangerous country in the world for journalists to operate, with 15 killed since the start of 2010.

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Sri Lanka's army

In bigger barracks

A victorious army keeps busy despite the lack of an enemy



Let the army make it next time

IN THE run-up to Vesak, the holiest day in the Buddhist calendar, which this year coincided with the second anniversary of its victory against the Tamil Tiger rebels, Sri Lanka's armed forces had plenty to do. The throngs who clogged Colombo's streets on May 18th for the festival of light marking the Buddha's birthday were treated to an array of glimmering, white paper lanterns, each meticulously assembled by a soldier, sailor or airman.

The army's non-martial tasks do not stop at lamp-making. Between 2006 and 2009 Sri Lanka inducted thousands into its army, navy and air force to fight against the Liberation Tigers of Tamil Eelam. With the war won, servicemen are being deployed in everything from market gardening to tourism.

The bloody end of the war is still being refought diplomatically. On May 27th Sri Lanka celebrated it with a military parade in Colombo featuring mostly Chinese, Ukrainian and Russian hardware. And on May 31st a three-day seminar opened in Colombo, with the aim of teaching the world how to defeat terrorism the Sri Lankan way. Meanwhile, in Geneva, at the United Nations Human Rights Council, a UN special investigator was showing video of Sri Lankan soldiers in the war's final days, apparently executing civilians. He called it "trophy footage" and evidence of serious human-rights abuses. However, despite calls for a boycott of the Sri Lankan seminar, 42 countries attended.

A notable omission from the agenda was any initiative to pare back Sri Lanka's now bloated armed forces. Instead, the government is finding new things for them to do. Soldiers are taking on the civilian middlemen who control the vegetable trade by selling cheap produce, some of it from military farms. The navy has even opened a vegetable shop near one of its biggest camps in Colombo. The army has an air-ticketing agency. It is building roads and bridges, and houses for the internally displaced. Soldiers built one cricket stadium and renovated another for the World Cup earlier this year. Restaurants along the highway to Jaffna in the north are mostly army-owned or -run. The army will even supervise the private companies that collect the rubbish in Colombo.

On the Jaffna Peninsula the army converted a former officers' mess into a 22-room luxury resort. It runs two hotels elsewhere. The navy has a canal-boat service in Colombo; it also offers whale-watching tours. In parts of the country the army in effect runs local government. In the Vanni district, for example, an area populated mainly by the Tamil minority, where hundreds remain displaced or resettled in shoddy shelters, many administrative measures need a military stamp of approval. The governors of the Northern and Eastern provinces are both retired military commanders. Other retired officers are now posted overseas as ambassadors.

A controversial post-war task for the army is to conduct "leadership training" for university students. Despite protests by student unions, and advice to the government from the Supreme Court to consider a postponement, a first batch of 10,000 students has started the compulsory course, conducted in army camps.

Gotabaya Rajapaksa, the defence minister, says the armed forces have tripled in number under his brother, Mahinda, the president. He sees nothing amiss with their deployment in "development work". The government has a duty, he says, to

care for its soldiers, many of whom were recruited in poor, rural areas. Nor is there much public protest against this creeping militarisation.

But NGOs caution against such extensive military involvement in civilian life and question the use of soldiers to fix public-sector failures. Indeed, says the National Peace Council, an NGO, failure to separate military and civilian roles could ultimately lead to "unwanted military rule nursed by a democratically elected government". When armies get above themselves, nasty things happen.

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Banyan

The great wave

A look at how Japan views the sea-and itself



AT AROUND the age of 70, Katsushika Hokusai, still bounding with artistic energy, created "Thirty-six Views of Mount Fuji", a series of *ukiyo-e*, or woodblock prints. His most famous, since reproduced on everything from Tintin books to tea cups, is "Beneath the Wave off Kanagawa", painted around 1830.

Most Westerners, when viewing it, focus on the wave itself, which towers over Mount Fuji in a show of almost implacable force, all the more terrifying considering the three fragile boats under it. Neil MacGregor, director of the British Museum, wrote in "A History of the World in 100 Objects" that the picture reflected frightened fishermen and an insecure, cloistered Japan about to be forced by American gunboats into the modern world. But Japanese art critics differ-and they have a point. In the picture the boatmen look more serene than fearful, as their vessels slice through the waves. Their stillness in the face of danger is all the more poignant in Japan, as they have a job to do. They are racing to deliver fresh fish to market, and yet they remain, as far as many Japanese see it, in delicate balance with nature.

Since the March 11th tsunami, once again Japan is examining itself through the prism of a great wave. What it sees can at first strike an outsider as oddly romantic. Talk to mayors of port cities up and down the stricken north-eastern coast of Honshu, Japan's main island, and they almost invariably describe the mighty ocean as a friend and source of hope-even though some lost loved ones, homes and businesses in the onslaught.

In Japan at large some people (though woefully few national politicians) feel that the destruction wrought by nature has revived a sense of purpose; some have even taken it as a cue to get married and procreate. During two decades of

constipated economics and politics, the deadening sense grew that Japan had lost its appetite for risk, whether entrepreneurial derring-do or even, in the context of a population that had begun to shrink, the risk of picking the wrong mate. But with a disaster on a biblical scale in March, the Japanese bowed to no one. Some fishermen, faced with 40-foot (12-metre) waves, took to their boats and headed straight over them: echoes of Hokusai's deliverymen. Granted, that was the best way to save their boats. But how refreshing if it were to reflect a reawakened sense of courage in the country as a whole.

If it does, where better to look than by the sea, chief pillar of national identity? Japan, though small in surface area, stretches far. To go from the northernmost tip of the Japanese archipelago to its farthest-flung southern rock is to travel from Norway's North Cape to Rome. The surrounding seas have long been regarded as Japan's protective armour, or sometimes its womb. (Until 1945 Japan had never been occupied by an enemy.) Moreover, the oceans are a bountiful source of the nation's food.

Yet the seas, and what Japan does with them, are also the main sources of friction with the outside world. The trouble starts with the names: the Sea of Japan is the East Sea to South Korea, and the East Sea of Korea to Pyongyang. Outlying islands are no less contentious, largely thanks to the memories of pre-1945 Japanese aggression that they stir up. So Dokdo, occupied by South Korea, is claimed by Japan, which calls it Takeshima. (Koreans denigrate the claim, pointing out that the island has no *take,* or bamboo, at all.) Island disputes with China and Russia also fester. And then comes whaling and dolphin-slaying, where the cultural gap with much of the Western world appears at its widest. The Oshika peninsula, devastated by the tsunami, welcomes visitors by boasting of its two main industries, whaling and nuclear power. No wonder that even before the Fukushima nuclear crisis, its stunning scenery was not on most foreign tourist itineraries.

Now that Japan faces the task of rebuilding its coastal communities, can it cast its relationship with the sea in a new light? That is the hope of some who want Tohoku, Honshu's north-eastern region, to become a blueprint for a more harmonious balance between man and nature-once the Fukushima nuclear plant stops pouring radioactive bilge into the ocean. Shigeru Sugawara, mayor of semi-destroyed Kesennuma, is one of them. Since the tsunami, he has printed new business cards that say: "Kesennuma is immortal as long as there is the sea." But he wants the relationship to change: a smaller deep-sea fishing industry, for example, and more "slow-life" industries, such as tourism, organic food and day-boat fishing.

The prefectural governor, Yoshihiro Murai, takes a somewhat different tack. He is trying to use the disaster to bypass co-operatives, whose priority rights over fishing along the coast, he claims, often put off private enterprise. Intriguingly, his calls for deregulation have struck a chord even in ancient fishing communities whose members are as old as Hokusai was when he created his masterwork. In Momonoura, an oyster-farming village, fishermen whose families have harvested the sea for centuries realise that, tsunami or not, their community is dying out, since young men and women do not want to step into their grandfathers' rubber boots. Private capital might not only buy new boats, but give offspring jobs close to home. Another village has set up an enterprising share scheme to finance new oyster beds and skiffs to work them.

Japan's most liquid bank

Yet for all the talk of change, many also know that the co-operative style of organisation has done a service to Japan's local waters by saving them from greater overfishing. Few now take for granted the abundance of the area's fish, even though they live by one of the world's richest fishing grounds, where Pacific currents meet. Some still call the ocean a bank, though no longer in the sense of limitless cash. They know the more they take out, the less is left. Such people are, like Hokusai, wise in their old age. Will they, like him, dare to embark on something new?

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Bahrain

The loathing persists

In the long run the ruthlessness of the ruling family may not ensure its survival



ON JUNE 1st, two-and-a-half months after a fierce crackdown on Bahrain's mainly Shia protesters, the ruling al-Khalifa family, which is Sunni, officially lifted a state of emergency that had been imposed with vigorous military support from Saudi Arabia and the United Arab Emirates. Tanks which had been manning city-centre junctions chugged back to bases farther out, hoping to give foreigners and locals alike a sense that normality had returned. The body that governs Formula 1 motor-racing is to decide whether to hold a race in Bahrain later this year: it had been postponed because of the unrest. If the green light is given, the authorities will hail the decision as a sign of international recognition that all is again well.

But it is not. In the Shia villages of the island's north-west, it felt much the same, as troops shot at a few token demonstrators. While Shia villagers cower, an air of Sunni triumphalism reigns over the island. A minority of some 40%, Bahraini Sunnis wave the flags of friendly Gulf states alongside their own. Teachers arrange "thank you, Saudi" days in schools. The Bahraini king's men have razed dozens of Shia shrines and put up billboards on main roads near Sunni-populated suburbs, depicting nooses dangled over the heads of Shia leaders. Hundreds of public-sector Shias have been suspended, to the delight of Sunni immigrants from such places as Pakistan and Bangladesh seeking promotion.

The Labour Market Regulatory Authority has purged the private sector of Shias suspected of sympathy with the protesters. Bank managers have been asked for employees' attendance records and told to sack Shias who were absent during protests in February and March. Parliament has been stripped of many of its Shia representatives. Sunni MPs have voted to accept the resignation of the Shia group, Wefaq, which was the largest in parliament.

Sunni town councils have voted to exclude representatives of the Shia opposition. "Throw out the traitors," says Abdel Nasser al-Mahmid, who heads Muharraq council, a Sunni stronghold in north-eastern Bahrain. Though mild-mannered, he is a Salafist, adhering to a fiercely puritanical version of Sunni Islam that harks back more than a millennium to the days of the Prophet Muhammad.

The crackdown has restored a facade of calm. Shia protesters and the few Sunnis who campaigned at their side are lying low, hoping the terror may pass them by. Demonstrators have removed celebratory photographs of Pearl Roundabout, the geographical hub of the protests, from their Facebook pages. Those still with jobs pin badges saying "al-Khalifa-Glory of the Nation" to their lapels. After weeks of self-imposed curfew, traffic jams outside the big shopping malls have been building up again; Asian girls in hot-pants are again queuing to enter hotel clubs. In a speech on May 31st, the 61-year-old king, Hamad bin Isa al-Khalifa, said he wanted to engage in a national dialogue. The lifting of martial rule would, he hoped, be a sign that peace and normality would prevail.

But reconciliation between the two main Muslim sects is still a distant prospect. Troops from elsewhere in the Gulf, mainly Saudi Arabia, will remain, along with military courts dispensing summary justice; hundreds of protesters have been sent to jail and around 90 have been killed or have disappeared; torture is rife. The Saudis apparently insist that Prince Khalifa bin Salman al-Khalifa, the king's 75-year-old uncle, who has been prime minister for 40 years, must stay in his post. The Saudis have urged the king not to use the safety valve, as his Jordanian counterpart has done, of dismissing the government. "It's a Saudi red line that the prime minister must not cross," says a prince.

In 2001 Shias and Sunnis together voted overwhelmingly to give Hamad, previously styled as a mere emir, the title of king in exchange for an elected parliament. But parliament's powers have since been slowly whittled away. Once relatively free of sectarian animosity, Bahrain has allowed the fiercely anti-Shia feeling expressed in Saudi ruling circles to cross the causeway that connects it with its much bigger neighbour. "Staff [from different sects] who used to spend the evenings together laughing no longer talk to each other," says a banker.

Built in the 1980s as a model of cross-sectarian integration, the dormitory suburb of Hamad Town, 18km (11 miles) south-west of Manama, the capital, now seethes with tension. Hitherto famed for its high rate of marriage between Sunnis and Shias, sectarian quarrels have repeatedly erupted in girls' schools. Local Sunni and Shia politicians campaign for the boycott of each other's businesses. A new Sunni group, the National Unity Gathering, has helped open a market intended to bolster Sunni merchants. "Especially in times of crisis, we have to break the near-monopoly of the Shia opposition on the food supply," says its leader, Abdel Latif Mahmoud. "Sunnis are waging a war on the Shias," bemoans a prominent Shia publisher who, before the crackdown, was often in friendly touch with the crown prince, Salman bin Hamad al-Khalifa, a relative moderniser whom Western diplomats hoped would displace his great-uncle as prime minister.

Indeed, reformers reckon that the 41-year-old crown prince has become isolated within the royal family. Precisely because he is strongly favoured by Western governments urging the ruling elite to accommodate the Shia majority, he is regarded with suspicion by the increasingly dominant Sunni chauvinists. And he is less keen to echo official assertions that the turbulence is all due to Iranian plots.

Amid such sharpening polarisation, accusations that Iran is encouraging its fellow Shias in Bahrain to rise up as a fifth column risk self-fulfilment. Forced out of public life, Shias are turning their backs on the regime. Doctors treat the injured in hiding to spare them arrest in public hospitals. Just as Sunni Bahrainis look to help from their Gulf neighbours, so younger Shias increasingly listen to Lebanese, Iraqi and Iranian television channels beamed by their co-religionists. "We do not say fight back, but I can't say to a man whose woman is being beaten 'do not defend yourself'," says Ali Salman, an Iranian-trained cleric who heads Wefaq. Thanks to a surge in the monarchy's naturalisation of Sunni immigrants, the Shia majority has slipped from around 70% a generation ago to barely 60%. Shias fear they may dip to a minority.

Despite the lifting of the emergency, the spectre of sectarian bloodletting in the manner of Lebanon and Iraq still frightens many people. Some Westerners are packing their bags. Banking, which once accounted for over a quarter of Bahrain's wealth, is searching for safer climes. Several foreign banks have drastically reduced their staffs. Even members of the ruling family are said to have sent wads of cash abroad. By using ruthless methods in the hope of preserving their power, the al-Khalifas may in the long run be storing up even more trouble and resentment for a shaky future.

Syria's turmoil

No end in sight

President Bashar Assad is floundering in his efforts to snuff out the rebellion



A dead child: an international symbol for the protesters

NOW in its third month, Syria's uprising shows no sign of abating. Indeed, though the weekly death toll goes up and down, the strife is worsening. On Friday May 27th, 12 people are known to have died-a lower number than on most previous Fridays. But the ensuing violence was as intense as ever. The army attacked two restive tribal towns, Telbiseh and Rastan, that lie just north of Syria's third city, Homs, which has also been in the line of fire. Tanks are reported to have shelled Rastan. At least 40 people have been killed and scores arrested. The main road north to Aleppo, Syria's second city, was closed and communications cut.

The unrest covers just about the whole country. Protesters, growing steadily in number, are becoming more innovative. People in neighbourhoods of Homs have taken to shouting "*Allahu akbar!*" ("God is great!") in unison from balconies at night. In Hama, where the president's father, Hafez Assad, suppressed an uprising in 1982, thousands protested in a square on May 27th. Deir ez-Zor, a tribal city in the north-east, is increasingly restless.

A plethora of torture reports is making people angrier still. The case of a 13-year-old, Hamza al-Khatib, has been widely aired, to general disgust. His body, given back by officials to his parents on May 25th, a month after he was arrested, bore multiple marks of abuse, including bullet holes, signs of electric shock, burns, bruises, a broken neck and castration. The state media said it was all faked but people generally believe the parents. A report by Human Rights Watch, a New York-based lobby, documents summary executions in Deraa, a southern city where the protests began.

Though the protests have been mainly peaceful, armed revolt may be brewing. In tough towns such as Rastan, Telbiseh and Tel Kalakh, where tribal honour is fiercely upheld, more people are responding to the security forces with force. In Rastan protesters threatened to blow up a bridge. In Tel Kalakh, a smuggling border town where guns proliferate, tanks have been hit by rocket-propelled grenades. The government makes much of its own forces' death toll, said to exceed 100, and cites the violence against them to justify the regime's crackdown. Armed gangs, many of them adherents to the minority Alawite sect to which the Assad family belongs, are reported to be terrorising rebellious areas.

Alawite villagers near Sunni settlements are said to have been given arms. Alawite army units are in the vanguard of repression. As a result, sectarian tension is up. In fact, the Alawite sect, an offshoot of Shia Islam that many Muslims do not consider Muslim at all, is split into clans. In February several Alawite sheikhs distanced themselves from the Assads on the website of an Alawite dissident, Wahid Saqr, deriding attempts to stir ethnic and sectarian strife. Syria is also divided by geography and class. Many educated middle-class people in Damascus dismiss the protesters as rural illiterates or religious fanatics. Some approve of the crackdown. A few say that "nothing is going on."

But most admit that the country is in turmoil. The hectic manner in which the state media seek to portray the situation as normal merely affirms the disarray. The economy is plainly in a mess. Tourism, which accounted for a good 5% of GDP in 2010 and was a key source of foreign currency, has evaporated. Foreign investors have fled. The government is promising more public-sector jobs and bigger subsidies for fuel. Regulations are being laxly enforced in the capital, as security forces and the police are tied up elsewhere and are scared of annoying people in central Damascus, which has been relatively quiet. Hawkers laying their wares on pavements have proliferated. Extra storeys go up overnight without permission.

The president is lying low. Since the trouble began, he has made two big speeches, one on March 30th to a sycophantic parliament, and another more serious effort on April 16th. He is poised to give a third. He has met delegations from affected areas and has conceded that his security forces have "made mistakes", but has accepted no blame for the deaths, now over 1,000. He has promised an amnesty for prisoners, including members of the still outlawed Muslim Brotherhood. Some 10,000 people are said to be jailed.

On June 1st a bigwig in the ruling Baath party said the government wanted a national dialogue, with parameters soon to be announced. But he refused to consider the sort of constitutional changes that could challenge Mr Assad's autocracy, allow him to be freely opposed in an election or remove the Baath party's official role as "leader of the state and society".

Efforts to blame foreigners for the unrest-and Western powers for wanting to restore colonialism-no longer seem to work. Protesters have begun to wave placards denouncing Mr Assad's ally, Iran, and chanting against Hizbullah, the Lebanese party-cum-militia that is part of an axis with the Iranian and Syrian governments. Its leader, Hassan Nasrallah, has recently spoken up for Mr Assad.

Outsiders have plainly been loth to get entangled. But they are getting edgier about doing nothing. The language of American officials, such as Hillary Clinton, the secretary of state, has become sharper. A draft of a UN Security Council resolution condemning the Syrian crackdown is circulating. Western governments are trying to persuade Russia, which has long backed the Assad regime, and China at least to abstain; the pair would probably veto any move to refer Syria's leaders to the International Criminal Court at The Hague, in contrast to their treatment of Libya's leaders. The Arab League, which endorsed NATO's attack on Muammar Qaddafi, is silently hedging its bets. But the Turks, after cultivating Mr Assad's friendship, seem to have turned against him.

The consensus among Arabs in the region has been that Mr Assad will survive the ordeal in the short run but lose legitimacy and stoke hatred for a future showdown. But that consensus is becoming less solid. Mr Assad is in a quandary. Should he talk to the opposition or whack it? Either way entails grave risks to his regime.

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Syria's opposition

A signal from nearby

Syrians in exile get together to plan a future together

IF SYRIA'S Bashar Assad has a recurring nightmare, it may look something like this: all his enemies gathered in one place, pledging to bring him down. Such was the mood of a recent meeting in the Turkish coastal resort of Antalya. Flying in from four continents, more than 300 Syrian exiles of all political hues joined a few dozen brave activists who had slipped out of Syria for the occasion, the biggest meeting yet of the country's hitherto fragmented opposition.

As was clear from the line-up of speakers, the Assads have made a lot of enemies during their 41 years of rule. For some, such as Kurds and Muslim Brothers, the animus has grown over decades of oppression, when many ethnic Kurds were deprived of their nationality and membership of the Brotherhood carried the penalty of death. Others had more personal reasons for loathing Syria's regime, having suffered in the Assads' prisons, lost the life of a relative to their thugs, or seen businesses ruined by greedy cronies of Syria's ruling family. One such victim, forced in recent years into exile and into abandoning a lucrative family business in Syria, took revenge by paying for the whole event.

To a surprising degree, bearded Islamists and bespectacled intellectuals, fiery Facebook youths, robed Arab sheikhs and elegant society ladies all sought to share a similar vision of Syria as a pluralist democracy. They generally seemed to agree, too, that the exiled opposition should make no claim to leadership but should leave it to those struggling inside Syria, so as not to let the regime accuse its opponents of acting for foreign powers.

Even in Antalya there were notable absences. Relatively few of Syria's Christian and Alawite minorities were there. Nor were any prominent defectors from Mr Assad's ruling Baath party. The exiles have yet to cohere enough to pose an

organised alternative to Mr Assad's rule, and so help prod international opinion towards helping them to speed its demise. But the meeting in Antalya sent a powerful signal to those inside Syria, who have so far sat on the fence, that the exiles mean business.

The battle for Yemen

Tribes at war

Yemen is threatening to descend into tribal chaos



Qat the tyrant down

AFTER four months of demonstrations and violent strife, Yemen may be sliding into civil war. Shortly after snubbing a third attempt at mediation by the six-country Gulf Co-operation Council (GCC), informally headed by Saudi Arabia, Yemen's President Ali Abdullah Saleh sent his forces to fight the leaders of his country's most powerful tribe, the Hashid. They have been bankrolling the opposition and helping to sustain the tens of thousands of protesters who have been camping out on the streets of Sana'a, the capital.

It was a dangerous fight to pick. The ensuing ten-day battle between the Hashid tribesmen and Mr Saleh's troops has already left 200 dead. The two sides, now separated by a few buildings in Sana'a, are firing everything from pistols to anti-aircraft missiles at each other, as they jostle for control of government buildings and the airport. Led by the al-Ahmar family, Mr Saleh's bitterest rivals, the tribesmen now control the interior and water ministries, the ruling party's main building and one of the city's main police stations.



Many of Sana'a's residents are panicking. Long lines of cars and buses, with luggage piled on the roof, are filtering out of Sana'a and into the mountains that surround it. Those staying put are hoarding basic supplies, withdrawing their savings from banks, filling buckets with petrol and barricading themselves indoors.

Mr Saleh's latest wrangling with the tribes, whom he has juggled for 33 years as the country's ruler, is part of his last-ditch effort to prevent his downfall. On May 30th his troops in Taiz, Yemen's industrial capital, 200km (125 miles) south of Sana'a, shot protesters besieging a police station, who hurled back Molotov cocktails. The army then sent in bulldozers and set fire to the protesters' tents, which had occupied the main square for the previous four months. Fifty protesters, mostly young men, were killed and hundreds injured.

The brutality of the crackdown in Taiz may have scotched any lingering hope that Mr Saleh and the opposition would finally seal an agreement providing for his peaceful exit, a guarantee of immunity, and a handover of power to a caretaker president within 30 days, as proposed by the GCC. The day after the slaughter in Taiz, Yemen's opposition coalition of socialists, Islamists and pan-Arabist admirers of Gamal Abdel Nasser sent a letter to the GCC secretariat saying they would no longer compromise with Mr Saleh.

In any event, it is unclear who might replace him. The GCC deal envisages elections within 60 days of a caretaker president taking over. As things now stand, a peaceful election is fanciful. It is just as likely that another strongman would push Mr Saleh and the remains of his regime aside.

The most plausible candidate for that role is Hamid al-Ahmar. One of Yemen's richest and most outspoken men, he founded Islah, the beefiest opposition party. His nine brothers include Sadiq, the head of the Hashid tribe; Hamir, parliament's deputy speaker; and Hussein, another powerful tribal leader. Last week Sadiq called Mr Saleh a "liar" and said he must leave the country "barefoot".

The Ahmar family have around 400 men holed up in Sana'a in a gothic-style mansion, pockmarked with bullets and crammed with ammunition. They may hold their own unless Mr Saleh decides to launch a full-scale assault, including attacks from the air, as he has done elsewhere in the past.

Another influential figure is the president's half-brother, General Ali al-Mohsen, who commands Yemen's 1st armoured division as well as forces in the north-west. Some months ago he turned against Mr Saleh but during the latest fighting he has been lurking on the sidelines, keeping watch over the thousands of protesters camped out in Sana'a's main square.

Even if Mr Saleh keeps his rivals in Sana'a at bay, swathes of the country are slipping out of his grasp. The rebellious Houthi clan now controls the area around Saada in the north. Zinjibar, a coastal city east of Aden, the former capital of the previously independent southern part of Yemen, has fallen under the control of some 300 gunmen that the government describes as al-Qaeda. Government forces have been pounding the city for several days, so far to no avail.

Although Mr Saleh has exaggerated the al-Qaeda threat, extreme Islamists are indeed steadily gaining more room for manoeuvre. Thanks to Yemen's enfeebled central governance, rugged terrain and rampant poverty, they have been able to thrive. Mr Saleh's American-trained counter-terrorism units have been unable to wipe them out.

All the same, Yemen's branch of al-Qaeda proper, rather than the disparate guerrilla forces that are sympathetic to it, probably numbers fewer than 200 fighters. They have hunkered down with local tribes in Abyan, Shabwa and Marib, a clutch of mountainous provinces that have been dubbed "the triangle of evil", and in the Jawf range. They embrace only a small minority of Yemenis but are self-ruling, determined and well-organised. The demise of Osama bin Laden, whose ancestors came from the Hadhramaut, in the harsh east, has had little effect on them.

In an effort to allay growing Western fears that Mr Saleh's fall might prompt a terrorist surge, the opposition has announced that it would be willing to sign a year-long agreement with Western governments to combat al-Qaeda in Yemen once Mr Saleh goes. But it is not certain that Islah, which would probably play a big part in any emerging post-Saleh government, would keep its word. In the eyes of some Western analysts, it has links with various jihadist groups.

Yet Mr Saleh's claims that he is a bulwark against al-Qaeda are falling on deaf ears, both at home and abroad. As the violence and chaos persist, the number of senior soldiers calling for him to go is growing. A former defence minister, Abdullah Ali Eliwa, recently issued a statement, signed by another nine senior officers, accusing Mr Saleh of "handing Zinjibar to terrorists" in order to "frighten people that, if he goes, Yemen will become Somalia." The longer he stays, the more that grim prospect may become a reality.

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The Gaza Strip

Let (some of) those Palestinians out

The Egyptians have opened their border with Gaza-with restrictions

NO SOONER had Egypt lowered the drawbridge at Rafah, letting the people of the Gaza Strip cross into Egypt and from there to the rest of the world, than its ruling military council began winding it up again. On May 31st Egypt's transitional government imposed a quota of no more than 400 passengers a day, insisted that they register the day before they cross, and declared that it was reinstating a blacklist of 5,000 Gazans who would not, for security reasons, be allowed to come over. This cut the flow to little more than when Hosni Mubarak, who was ousted as president in February, co-operated with Israel to keep Gaza under siege.

After a brief bout of jubilation at the restoration of the freedom to travel, the cutback brought back the Gazans' old sense of imprisonment. Busloads of passengers who had waited all day to cross into Egypt trundled back, defeated, their bags in tow. Among them was a couple in their 60s trying to get medical treatment in Egypt; a 40-year-old who had waited 16 years to see his mother in Cairo; and a Palestinian in a brown Islamic robe trying to return to his home in Libya's eastern town, Darna, which has a reputation as a jihadist haunt. To his fury, the Egyptian authorities let his brother with a shorter beard enter.

Egyptian officials say they could further lift the restrictions if only the Palestinians' two main factions, Hamas and Fatah, would form a unity government as recently agreed under Egyptian mediation. Still, the reopening, however controlled, illustrates the warming of relations between Palestine and the new Egypt. Travel agents in Gaza say people have asked about package holidays in Egypt's Sinai desert. Palestinian businessmen are preparing to head for trade fairs in China. And unemployed Gazans are dreaming of getting jobs abroad.

The bottom line is that Gazans can now enter Egypt without visas-except for men aged between 18 and 40. And even they may be let in, if accompanied by wives or mothers.

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South Africa and race

The clashing rainbow colours

Without Nelson Mandela's healing hand, racial divisions get uglier



Zille's no madam

NEVER since the end of apartheid in 1994 has an election in South Africa been fought along such unashamedly racist lines. As elsewhere in the world, local government elections usually produce a yawn. But in the run-up to the municipal polls on May 18th, leaders of the ruling African National Congress (ANC), including President Jacob Zuma, played the race card remorselessly, in a bid to block the slow but steady rise of the Democratic Alliance (DA), led by a white woman, Helen Zille.

As an investigative journalist on the liberal *Rand Daily Mail* in the 1970s, it was Ms Zille who first exposed the apartheid government for lying about the murder in prison of Steve Biko, a Black Consciousness leader. Rewarded with death threats and obliged to resign her job, she became a leading light in the Black Sash, a white women's human-rights group. Given a suspended prison sentence for being in a black "group area" without a permit, she let her home be used as a safe house for anti-apartheid campaigners and in the turbulent 1980s was forced into hiding with her two-year-old son.

Yet she is often now vilified by the ANC and its allies as a racist "madam". They have caricatured her as the boss of a Nazi-inspired white-supremacist party "hellbent on treating black people as subhuman" and on taking the country back to the apartheid days of racial division, inequality and oppression. The ANC told blacks who considered deserting the liberation party to vote for the DA that they were courting the wrath of the ancestors, would never get to heaven, and would hasten the demise of the ailing Nelson Mandela, the country's first black president, revered by both whites and blacks for his unwavering commitment to racial reconciliation and harmony.

In a country where 79% of the 50m-strong population are black, 9% white, another 9% coloured (mixed-race) and 3% of Indian or Asian descent, the still white-dominated but increasingly multiracial DA ended up doing rather well, increasing its support in every municipality it contested. Final election results gave it almost one in four of the votes cast (24%), up from 16% in the local polls five years ago.

For the first time it won an outright majority of votes to retain its control of Cape Town, the country's second-biggest city. And it mopped up virtually the entire minority vote nationwide. Though it won only 5% of the black vote, that was nevertheless a sharp improvement on the estimated 1% it took in the 2009 general election. One in five of its support base is now black.

But the vote leaves South Africa more racially divided. Despite the ANC's poor performance in local government-two-thirds of South Africans told pollsters they were unhappy with service delivery-the ruling party still gets the support of the vast majority of black voters, winning 62% of the overall vote in the latest local polls. Though four percentage points less than last time, this still leaves the ANC in control of all but a few dozen of the country's 284 municipalities, as well as eight of its nine provinces and the national government.

But the racist overtones of its campaign has left a nasty taste in many South African mouths, including those of some of its own supporters, who fear it marks the growing ascendancy of the party's "Africanist" faction.

For noisy populists such as Julius Malema, head of the ANC's Youth League, are no longer the only ones appealing to fears of racism. According to Trevor Manuel, the ANC's former finance minister, who is coloured (and may soon bid for the IMF's top job), "racism has infiltrated the highest echelons of government". And beyond. It is becoming more acceptable for black South Africans to scorn and abuse whites openly as a racial group.

Though the ANC and its leaders continue to intone the mantra that South Africa belongs "to all its people, black and white", as enshrined in the constitution, many members of minorities-Indians and coloureds, as well as whites-are beginning to have their doubts. Criticism of the government or the ANC is increasingly depicted as a racist slur. One ANC minister said that such criticism implied that "these darkies are incapable" of governing.

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Saving African children

Faster is not always better

Many children get the wrong kind of emergency care

MALARIA and septicaemia (blood poisoning), responsible for 2m deaths worldwide every year, are among the biggest killers of African children. Clinics across Africa witness the same tragedy: a limp child, clammy and cold to the touch, with a fast, weak pulse, is carried in by a distraught parent. The body has sent blood to the vital organs in a last effort to cling to life. What happens next is critical. Up to 22% of children brought into African hospitals in this condition end up dead.

To stave off an immediate demise, the standard practice in most hospitals is rapidly to infuse a large dose of fluid, known as bolus. This is cheap and is supposed to keep the child alive long enough for medicine to start working. Yet a new study looking at 3,170 children in Kenya, Tanzania and Uganda was ended prematurely this year when bolus infusions were found actually to increase the risk of death. Children given fluids more slowly did better-though why is still a mystery. The research team says the findings are robust and "will save many lives in the future".

Professor Kathryn Maitland of Imperial College in London, the lead investigator on the Fluid Expansion As Supportive Therapy study, known as FEAST, says that training medical staff to identify critically ill children, plus making sure that anti-malarial drugs, antibiotics, oxygen and glucose are available, is the best way to reduce the mortality rate.

Two lessons for emergency care of children in poor countries can be drawn. The first is to get the World Health Organisation and others to rethink their advocacy of fluid resuscitation to children with malaria, septicaemia, meningitis and similar diseases. The second is to organise emergency care better. The study's counter-intuitive findings also strengthen calls for more clinical trials. "It shows we need to do more research in Africa for Africans," says Peter Oluput-Oluput, a Ugandan doctor.

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The Balkans after Mladic

Slowly towards Europe

The arrest of Ratko Mladic will do much to help Serbia, but its effects elsewhere may not be as sweeping as some hope



A WEEK after the arrest of Ratko Mladic, the echoes of those who instantly predicted all things bright and beautiful for the Balkans are dying away. Mr Mladic, a former Bosnian Serb commander, was indicted by the Yugoslav war-crimes tribunal in 1995. The gravest charge is genocide, for allegedly ordering the murder of 8,000 Bosnian Muslim (Bosniak) men and boys after the fall of Srebrenica that July.

His arrest and trial in The Hague will have ramifications (see article). But as the euphoria of some and anger of others both subside, these may turn out to be less dramatic than many foreign pundits suggest. Zoran Lucic, who heads CESID, a Serbian polling group, has no doubts: there will be no Mladic effect at home. One poll shortly before his arrest found 51% against the extradition of Mr Mladic, with 40% regarding him as a hero. But Mr Lucic says that experience shows that these people might be upset "for a very short period: a day."

The Mladic effect may be stronger in the European Union (see Charlemagne). The Serbian government is desperate to be made an official EU candidate in December, so that it can call an election on the back of this success. For this purpose, the arrest of Mr Mladic is huge, even if it is not enough on its own. Apart from mundane reforms such as showing that it has a properly independent judiciary, Serbia will have to make some deal with Kosovo, which declared independence in 2008, to give the impression that their dispute can be resolved one day.

Serbia will do enough to secure candidate status, but Mr Lucic thinks even that may not win the Democratic Party, led by President Boris Tadic, the next election. Jobs and the economy will be at the top of most voters' agenda. Yet the main opposition Serbian Progressive Party may not benefit, either. Its leader, Tomislav Nikolic, reacted like a frightened rabbit to the Mladic arrest, saying only he was "surprised". Had he applauded it, he would have lost voters; had he condemned it, he would have lost the respectability he has cultivated abroad. Until 2008 he was acting head of the Serbian Radical Party, whose leader is also on trial for war crimes in The Hague.

Will there be a Mladic effect across the "Yugosphere", as the countries of the former Yugoslavia are sometimes known? Perhaps less than some might hope. The arrest shows that Serbia means to meet its commitments. But that is the message it sent when it arrested Radovan Karadzic, the wartime Bosnian Serb leader in 2008; when Mr Tadic paid homage to the victims of Srebrenica; and when he forced a resolution through the Serbian parliament in 2010 to condemn the massacre. Those Bosniaks, Croats and Kosovars who insist that Serbia has not changed will not now be persuaded. Equally, Bosnian Serbs who have been demonstrating for Mr Mladic will not suddenly be reconciled with the Bosnian state he tried to destroy.

EU officials like to talk of a regatta, with each western Balkan country sailing elegantly in after completing its accession process. In reality the former Yugoslavs and Albania are more like old cars, juddering forward, breaking down and sometimes spluttering backwards. To varying degrees all have similar problems that will hold up their membership. These include organised crime, corruption, party cronyism and a media hobbled by political and commercial interests.

Last December's arrest of Ivo Sanader, Croatia's former prime minister, on corruption charges was a sign that the Croatians, who hope to finish their accession talks in early July, are moving forward. Montenegro is already a candidate and is working diligently through the things it must do. Serbia hopes to do the same next year. Macedonia, however, has stalled. Apart from tensions between Macedonians and ethnic Albanians, who make up a quarter of the population, relations between the main parties have been ugly. Macedonians go to the polls on June 5th, and are expected to re-elect Nikola Gruevski, their populist prime minister, though with fewer seats than before. Kosovo has stalled too. It is a measure of how far behind it is that Kosovars are now the only people in the Balkans who cannot travel visa-free into the EU's Schengen area.

Bosnia has spent five years moving backwards. It held an election last October but still has no government. A crisis with Republika Srpska, the Serb bit of the country, was recently averted. The Bosnian Croats complain that they are being marginalised by Bosniaks. But if both Serbia and Croatia move towards the EU, Bosnia will surely take notice. Any new conflict would be a disaster all around. No leader in Belgrade or Zagreb could allow his Bosnian cousins to derail their own future.

Perhaps most worrying is Albania, which has been paralysed since a disputed election in 2009. Local elections on May 8th may have made things worse. In Tirana the contest for mayor was a dead heat. The candidate of Sali Berisha, the prime minister, won only if ballots put in the wrong boxes were counted. But that, say supporters of Edi Rama, mayor since 2000 and leader of the opposition Socialists, is against the rules. The electoral college is to rule on June 3rd, but few expect the stalemate to be broken. Albania's progress towards the EU has stopped, business confidence is suffering and a culture of impunity rules. Corruption scandals proliferate, but nobody is punished.

The hope in Brussels is that the Mladic arrest will jump-start the enlargement process for all the western Balkans. June 2014 will mark the centenary of the assassination in Sarajevo that led to the first world war. With luck it will be commemorated in a region that has become quiet again.

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Italy's beleaguered prime minister

Silvio snubbed

Bad results for Silvio Berlusconi, but also for the main opposition party



Berlusconi and fiscal minder

WHAT could be worse for the euro than political instability in Italy? How about a government trying to buy popularity with higher public spending and/or tax cuts? That was the spectre conjured by Silvio Berlusconi after the local election run-off this week, when his conservative government lost control of Milan, his home city and an unassailable fortress of the Italian right for two decades.

The main reason Italy has escaped the euro-zone crisis is that Mr Berlusconi's finance minister, Giulio Tremonti, has curbed his boss's easy-spending, populist instincts and imposed strict fiscal discipline. He has done little to get the economy growing (Standard & Poor's, a rating agency, has cut its outlook on Italy from stable to negative). But Mr Tremonti has reassured investors that Italy can finance its huge public debt (almost 120% of GDP).

Yet soon after the elections it became clear that Mr Berlusconi wanted to change fiscal policy. Asked what he would do if his finance minister refused to loosen the purse strings, he replied: "We'll make them open. Tremonti doesn't decide." Later he made a statement reaffirming his confidence in Mr Tremonti. But this is his third such disclaimer in a month. The pressure on him to splash out is severe.

Milan was among 90 Italian towns and cities with run-off votes. Mr Berlusconi's candidates took a beating. In Naples the opposition candidate won over 65% of the vote. The centre-right lost Arcore, the town near Milan where Mr Berlusconi has his main private residence and, it is alleged, held his "Bunga Bunga" parties. A trial in which he denies paying an underage prostitute to attend such a party resumed the day after the vote.

The loss of Arcore was one of several that made these elections a personal calamity for Mr Berlusconi. Milan is his home city, from which he launched himself into politics 17 years ago, and the place he could rely on to back him in the darkest moments of his career. By putting himself on the slate of the outgoing mayor and declaring the election a national one, he turned it into a vote of confidence in his management of Italy.

Two other things must worry Mr Berlusconi. One is that Milan is Italy's bellwether: conventional wisdom has it that what the Milanese do today the rest of the country does tomorrow. Second, his Northern League coalition partners also took a thrashing. The loyalty of Umberto Bossi's movement, which combines regionalism with populism and Islamophobia, is vital to the government's survival. Its poor showing in the first round had persuaded many in the League that the time had come to sever links with Mr Berlusconi's People of Freedom movement. The second round, in which the League lost control of the north-eastern city of Novara, will make that view more widely shared.

Some of Mr Berlusconi's opponents hailed the results as a sign that his long ascendancy in Italian politics was drawing to a close. But that is to jump to conclusions. As the prime minister quipped, even his successful AC Milan football team loses sometimes. These were mid-term elections that produced typical mid-term victors. The new mayor of Milan, Giuliano Pisapia, was not the choice of Italy's biggest opposition group, the centre-left Democratic Party, but of the smaller and more radical Left, Ecology and Freedom movement, led by the governor of Puglia, Nichi Vendola. The winner in Naples was a maverick former prosecutor, Luigi de Magistris, who ran for the anti-corruption Italy of Principles

party, founded by another former prosecutor, Antonio Di Pietro. Not the least of the questions posed by these elections was whether they presage a shift not just on the right, but also on the left.

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Protests in Georgia

On Rustaveli Avenue

The Georgians blame Russia for recent protests



Protest with peaceful message

LIKE a good actor, Georgia can swiftly change appearance without even leaving the stage. On May 25th it presented its ugly face, as a few hundred stick-wielding protesters led by Nino Burjanadze, a former speaker of parliament, clashed with police, who dispersed them with tear gas and rubber bullets. This was the Georgia of old, where politics unfolds in front of parliament not inside it. But the next day Georgia celebrated its independence with a military parade in front of President Mikheil Saakashvili. All signs of the previous night's disorder were gone. People strolled along Rustaveli Avenue, vendors sold ice-cream and soldiers posed with girls. This was Georgia's new official face.

The most attractive face of all emerged two days later, when thousands of Georgians came out to protest against violence, whether carried out by the police or by the opposition. Not a policeman was in sight. As Irakly Alasania, a former diplomat and more respectable opposition leader, says, "the era when politicians can just call people on the streets is over. Georgia is building a new political culture. People want to determine Georgia's future through elections."

This is bad for Ms Burjanadze, one of the least popular Georgian politicians. Disorder was her only chance to claw her way back to power. Some policemen used excessive force on protesters who were no longer resisting, but violence seems to have been Ms Burjanadze's goal. Having provoked the clash, she fled in a motorcade that ran over and killed a policeman and a protester, according to the police. The next day two more bodies turned up-apparently electrocuted by a loose cable.

The televised violence coincided with a G8 summit in France, allowing the Kremlin to milk the protest to the full. Russia's foreign ministry decried "a flagrant violation of the right to peaceful assembly". (A few days later Russian police brutally suppressed a peaceful demonstration in Moscow.) Russia Today, a propaganda television channel, even likened the

Georgian situation to the Arab revolutions. In fact, Mr Saakashvili's support is at its highest since his 2008 war with Russia.

The Georgian police have arrested several armed men linked with Ms Burjanadze's party and notorious figures in Moscow. Whether the Kremlin sponsored Ms Burjanadze or just exploited an opportunity is hard to say. But she is a welcome guest in the Kremlin and last year met Vladimir Putin, Russia's prime minister. Russia is violating its post-2008 ceasefire. Several bombings last autumn were traced by Georgian security to a Russian military-intelligence base in Abkhazia, a breakaway enclave. Georgia kept this quiet. "We did not want to be told that we were crying wolf again," says Mr Saakashvili. But Georgia shared its evidence with the West, prompting Hillary Clinton, America's secretary of state, to raise the issue with Russia's foreign minister, Sergei Lavrov.

Another Russian military intervention is unlikely. But disturbances help to make Georgia look unstable, deterring tourists and investors alike. After a deep recession in 2009, the economy rebounded to grow by 6% last year. But that was accompanied by double-digit inflation. Foreign aid of $4.5 billion over the past three years is running out. Yet foreign investment, which hit 20% of GDP in 2007, is now only 4.7%. The government is intervening to support farming, which employs half the population. Georgia wants a free-trade agreement with the European Union, which means restoring regulations it had earlier scrapped. Yet unlike Turkey, which is playing a bigger role, the EU seems in no hurry to embrace Georgia. Kakha Bendukidze, an architect of Georgia's liberal reforms, says that, although the benefit of converging with the EU is not assured, the cost is high.

Georgia's future will be largely determined by that of Mr Saakashvili. Last year the constitution was amended to give more power to the prime minister, making the president more of a figurehead. This will take effect in 2013, when Mr Saakashvili is due to step down. He refuses to be drawn on the question of succession. "I have a lot of ambitious plans for the next two years and I do not want to be a lame duck," he says. Yet following Mr Putin's example by making himself prime minister might undermine his legitimacy. As Giga Bokeria, one of his closest aides, says, "no government in Georgia can maintain power without public support".

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Latvia's politics

Time enough

An overdue political reckoning in one of Europe's wobbliest economies

SEEN one way, the last thing Latvia needs is a political crisis. The small Baltic country has clawed its way back from a huge economic bust and bank crisis that followed a breakneck boom. It regained competitiveness through wage cuts and fiscal restraint, rather than by devaluation. After a 20%-plus fall in GDP, growth is flickering upwards. Unemployment is still 16%, but that is down from a peak of 20%. The IMF, which led a bail-out in 2008, has just lent more money-which may not be needed. Latvia has a decent prime minister, Valdis Dombrovskis, and a functioning if precarious coalition government.

But a political convulsion has now upended this picture. The president, Valdis Zatlers, once seen as ponderous and lacklustre, has unleashed a frontal assault on Latvia's politically influential tycoons. This followed a vote in which parliamentary deputies overruled the country's anti-corruption agency, KNAB, which wanted to search the home of a tycoon and party leader, Ainars Slesers, as part of a probe into abuse of office, bribery and other sleaze. (Mr Slesers denies all wrongdoing.) Mr Zatlers used one of his few powers to call a referendum on the dissolution of the Saeima, as the parliament is known.

KNAB's zeal is popular among Latvians, who cherish their often impressive state institutions, just as they mostly despise politicians. Mr Zatlers may win his referendum. But he has not helped his chances of re-election in an upcoming vote by the existing Saeima. Nor is there any guarantee that a new legislature, when elected, will be any cleaner.

Outsiders worry about Latvia's manifold weaknesses, ranging from leaky border controls to feeble defence spending, as well as the domination of the media by shadowy commercial interests. The latest rumpus will do little for confidence in the short term. But if it leads to real change in Latvia's murky politics, Mr Zatlers will be vindicated.

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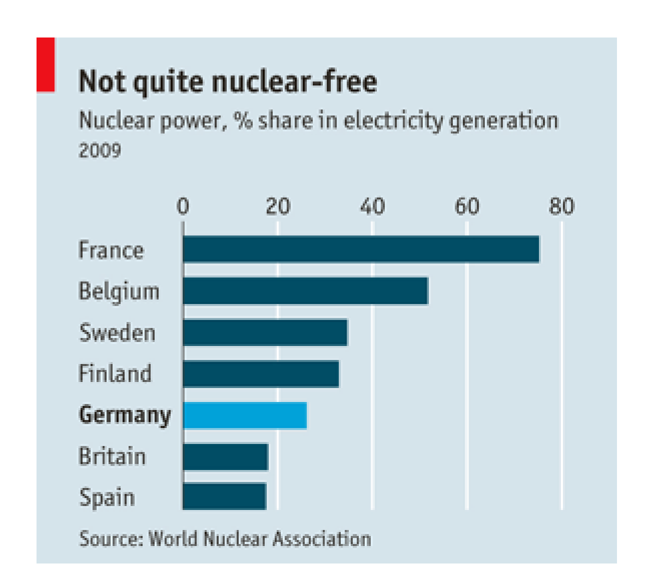
German energy

Nuclear? Nein, danke

A nuclear phase-out leaves German energy policy in a muddle

EVERYONE was horrified by the earthquake and tsunami that killed 24,000 Japanese and caused three nuclear meltdowns. But in Germany the feeling was laced with terror. Suspicion of nuclear power became mass revulsion. At a recent race in Berlin sponsored by Vattenfall, which generates nuclear power, many runners carried no-nuke flags.

The response of Chancellor Angela Merkel has been called the swiftest change of political course since unification. Only last year her government overturned a decade-old decision to phase out nuclear power by 2022. After Japan she suspended that policy and yanked seven of Germany's 17 reactors off the electricity grid. On May 30th she completed her U-turn. The plan to keep nuclear plants operating for 12 more years was scrapped; the seven reactors will be shut for good. Germany will be "the first big industrial country to shift to highly efficient and renewable energy, with all the opportunities that offers," Mrs Merkel promised. Industry is less thrilled about losing nuclear, which provides 23% of Germany's electricity reliably and cheaply. It "fills me with worry," said Hans-Peter Keitel, president of the Federation of German Industries.



The "energy transformation" is neither as revolutionary as Mrs Merkel suggests nor as hazardous as industry fears. Germany is returning to its policy of seven months ago. It has surplus generating capacity and low prices that are unlikely to rise much in the next few years, notes Mark Lewis of Deutsche Bank. Mrs Merkel's shift was already under way. In 2000 30% of electricity came from nuclear. Since then, renewables like solar and wind have expanded their share from 6.6% to 16.5%.

The new plan is meant to make it easier to raise this share. But Mrs Merkel is also using Germans' nuclear fears to smash their aversion to new infrastructure. The Bundestag is due to approve eight laws by the end of June to facilitate this. Yet the task depends also on citizens' participation. "What is your contribution?" Mrs Merkel asks people. She hopes for political revival. Her Christian Democratic Union (CDU) was pushed into third place behind the Social Democrats and the Greens in Bremen in May for the first time at state level. While slowing the Greens' rise, she also wants the CDU to seem a possible coalition partner after the federal election in 2013.

The nuclear reversal burnishes her credentials as a moderniser. Whether it will help Europe's strongest economy is less clear. The rise in fickle solar and wind power increases the risk of instability in electricity supplies; with the closure of seven reactors, "we are really going to the limits," says Christian Schneller of TenneT, a Dutch-German transmission company. Congestion on lines carrying power from north to south raises the risk of blackouts.

Germany promises neither to increase imports from nuclear neighbours nor to emit more greenhouse gases than planned. That will be hard. "You can't have a liberalised energy market and close the border," says Manuel Frondel of RWI, a research institute. Germany will emit an extra 370m tonnes of CO_2 as it replaces nuclear with gas- and coal-fired plants. Europe's emissions are capped by an emission-trading scheme, but the costs will now rise for everybody. Germany's own goal is more ambitious: a 40% reduction from 1990 by 2020. This will not be met, says Mr Frondel.

Mr Schneller says the pace of progress on infrastructure must dictate the energy mix, not the other way around. Of the 3,500km (2,175 miles) of transmission lines that are needed to carry renewable power from (largely northern) sources to southern and western consumers, just 90km have been built. "Monster masts" provoke almost as much opposition as nuclear reactors. To shift fully to renewables, Germany needs to boost storage capacity by a factor of 500.

The government plans to speed up planning and licensing, as it did after unification. Progress is to be monitored, perhaps by a new parliamentary watchdog. The government may set up a "national energy transformation forum" to enlist citizens. If greenhouse-gas emissions rise faster than planned, says Mrs Merkel, conservation will have to improve.

Germany cannot do all this on its own, argues Ottmar Edenhofer of the Potsdam Institute for Climate Impact Research. Big efficiency gains will come only if Europe's carbon cap includes housing and transport. Ramping up renewables would make more sense if Germany tapped into sunnier and windier parts of Europe, which requires a pan-European electricity grid. "Scaling up can only be done on a European level," says Mr Edenhofer.

Germany did not become a role model by being hard-headed. Its subsidies for renewable energy are wasteful and its nuclear pull-out looks panicky. In short, the post-nuclear recoil carries risks of its own. Yet if anyone can make it all work, says Mr Lewis, the Germans can.

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E. coli in Germany

Don't shoot the cucumber

A deadly outbreak in Hamburg causes ripples round Europe



SEVENTEEN deaths, some 1,500 confirmed or suspected cases and hundreds of millions of euros in losses: the outbreak of *E. coli* infections in northern Germany is causing havoc across Europe. The culprit is an especially nasty strain of *E. coli*, which normally resides harmlessly in the gut. Type O104:H4 can cause bloody diarrhoea, convulsions and, most lethally, haemolytic-uraemic syndrome, which attacks the kidneys. Nearly all the dead are women. Nobody knows why.

German health authorities at first traced the infection to organic cucumbers from Spain and advised people to avoid them, along with salad and raw tomatoes. Now it seems the cucumbers were innocent (though some may have been contaminated with another strain). But the vegetable warning still stands, and the economic and political damage is mounting.

Spanish growers claim that they are suffering losses of euro200m ($287m) a week. All European countries have stopped buying from Spain, says the head of the fruit and vegetable exporters' association. The scare is also affecting farmers in other countries, including Germany, where growers put their weekly losses at euro30m. Russia has now banned imports of fresh vegetables from the European Union.

The false alarm about Spanish cucumbers will further scuff Germany's image in a neighbourhood where it has not been popular lately. Portugal and Greece blame Germany for the austerity they have to undergo in exchange for bail-outs to keep the euro together. Spain may demand compensation for the losses of their farmers. "We are disappointed by the way Germany handles the situation," complained the Spanish agriculture minister, Rosa Aguilar.

Yet that is not Germany's main worry just now. Investigators need to find the source of the deadly *E. coli*. Until it does, more farmers will suffer, more tempers will flare-and more people will die.

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Charlemagne

Arrest and revival

The capture of Ratko Mladic may revive European enlargement



"THE current Serbian strategy for apprehending the fugitives is comprehensively failing. Serbia must critically re-evaluate all steps undertaken so far..." Days after writing this assessment in a draft report to the UN Security Council last month, Serge Brammertz, chief prosecutor at the Yugoslav war-crimes tribunal in The Hague, had to revise his view when Ratko Mladic was captured in Serbia after 16 years on the run. He was handed to Mr Brammertz on May 31st to stand trial.

The arrest of the former Bosnian Serb commander is good news for the relatives of those killed at Srebrenica; for international justice, which may be slow but has a long memory; for Serbia, which has taken a leap towards integration with Europe; and for the European Union, which, despite its economic and political troubles, has shown its potential to transform even intractable Balkan disputes. That the arrest took place on the same day as a visit by Cathy Ashton, the EU's foreign-affairs boss, was a coincidence. But few doubt that the EU played a big part through the power of its unique tool, enlargement. The promise of EU membership, on condition that Serbia first co-operate with war-crimes prosecutors, strengthened the resolve to find Mr Mladic.

The capture also came at a propitious moment for Serbia's president, Boris Tadic. It neutralises the scathing report that Mr Brammertz was to issue formally on June 6th, which would have brought rejection of Serbia's bid for EU membership (the European Commission will issue its opinion on its application in October). Serbia has averted the prospect of its march to Europe being blocked just when its neighbour, Croatia, is preparing to become the 28th member of the union (it should end its negotiations by early July, and could join in 2013).

Until a few days ago Croatia looked like the tail of the procession of ex-communist countries joining the EU. Turkey's talks have almost ground to a halt, and the western Balkans seemed hopelessly stuck in the past. With the arrest of Mr Mladic, though, Croatia may yet become the van of a new parade of Balkan members. For Stefan Fule, the EU's enlargement commissioner, the Mladic arrest could be the "spark" that revives the region.

Even if Mr Brammertz says Serbia has more to do (Goran Hadzic, former leader of the Croatian Serbs, is still at large), Serbia will probably win EU candidate status this year. Whether it can start talks immediately (ie, in early 2012) or, more likely, be asked to do more homework first will depend on how far Mr Tadic pushes judicial reform and reconciliation with Kosovo. Montenegro, already a candidate, may also be deemed fit to begin accession talks. Senior Eurocrats cling to the hope that this month's election in Macedonia will produce a government able to end the tedious dispute with Greece over the country's official name, clearing the way for talks to begin. Bosnia might look less dire if Serbia moves closer to Europe. Even Albania, denied candidate status because of its democratic failings, still sees the EU as its destination.

Caution is in order. The EU has so far made the most progress with the easier cases. Slovenia (an EU member since 2004) and Croatia are the most westernised bits of the former Yugoslavia. Enlargement is effective only if local leaders, like Mr Tadic, are predisposed to integration. Extraditing Mr Mladic is easier for Serbia than giving up on Kosovo, whose independence is recognised by only 22 of the EU's 27 members. Mr Tadic refused to attend a summit with President Barack Obama in Warsaw because Kosovo's president, Atifete Jahjaga, was also invited. Some EU countries want Mr Tadic to take a "decisive" step on the Kosovo question-perhaps by expediting the passage of Kosovars and their exports through Serbia-before starting membership talks.

Balkan countries struggle with many handicaps. They must not just manage the thorough reforms that other ex-communist countries have undergone. In some cases they must embark on state-building, too. Moreover, they must contend with an ethnic patchwork in which peoples and borders can never align, and a legacy of atavistic bloodshed dating to the break-up of the Ottoman empire.

Consumed by history

The Balkans, said Winston Churchill, "produce more history than they can consume". They may also produce more history than the EU can digest. The nationalist obsession of a single small member can hamper the workings of the union as a whole: the division of Cyprus (an EU member) and its dispute with Turkey (a NATO member) mean that the two most important international organisations in Europe cannot co-ordinate properly. Thus one watchword in Brussels is "no more Cyprus".

Another is "no more Romania and Bulgaria". Most Eurocrats agree that the EU 's two newest members, struggling with corruption and organised crime, were let in too soon. Entry requirements have since been toughened, raising complaints of double standards. But if mishandled, Balkan accession could yet bring more Cypruses, Romanias and Bulgarias rolled into one.

There is another danger: that "enlargement fatigue" among existing members, at a time of rising xenophobia and populism, will consign the Balkans to eternal instability. Turkey's accession talks are blocked by members, like France and Cyprus, that do not want it to join. This is one reason why Turkey has slowed down reforms and become more awkward in its foreign policy. Enlargement fatigue has a mirror image: apathy and resentment. By expanding, the EU has a remarkable tool for influencing its neighbours, but only in the right circumstances. A country must want to join, it must be given strict conditions for reforms, it must settle disputes within and on its borders and it must see the promise of membership as genuine. Membership without conditions spells trouble; conditions without membership spells betrayal.

Economist.com/blogs/charlemagne

Cuts at the BBC

And now for something completely different

Britain's main public-service broadcaster has to make drastic cuts. They look set to be driven by politics not quality



THE BBC is having to play its part in Britain's austerity programme, and faces six lean years, in which its main source of income, the "licence fee"-an annual levy on television-owning households-will be frozen. The government will also stop providing separate funding for the BBC World Service's foreign radio broadcasts, and make the BBC pay for S4C, a Welsh-language television service. The modest cost-trimming the BBC has announced so far will be nothing like enough, so its bosses are now drawing up more severe cutbacks.

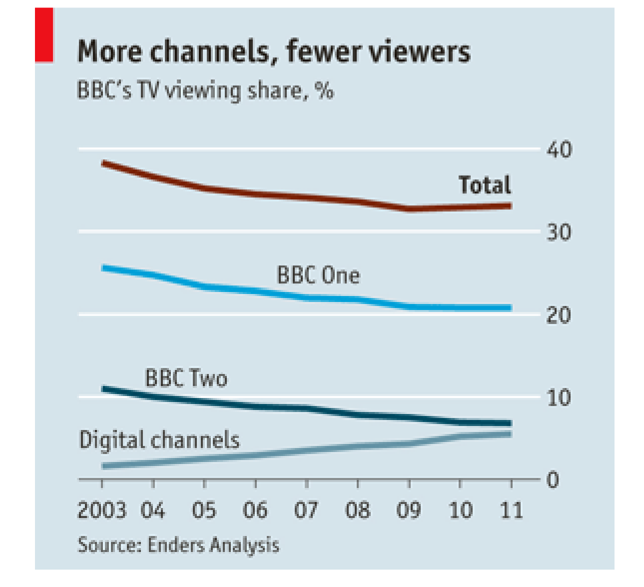
The funding freeze means that by 2017, savings worth around pound750m ($1.2 billion) at today's prices will have to be found from the BBC's current annual spending of pound3.6 billion on television, radio and online channels aimed at British audiences. Its management has just completed a consultation with the 17,000 staff on how to achieve this. Proposals will shortly be presented to the BBC Trust, the broadcaster's governing body. The trust has just gained a new chairman, Lord Patten, a Conservative former cabinet minister who was Britain's last colonial governor of Hong Kong.

In the declining bit of empire he now has to oversee, the main debate is between whether to achieve savings by "salami-slicing"-lots of relatively small cuts, spread evenly around the corporation-or through more radical surgery, in which, for example, some of the digital channels the BBC has opened in recent years are shut. A report on May 12th from the House of Commons committee that scrutinises broadcasting policy leant towards the latter: "The risk is that by trying to retain all its services, the BBC ends up spreading itself too thinly, so that quality and distinctiveness suffer," the MPs concluded.

A vigorous pruning of the hundreds of websites operated by the BBC's online division is already under way, with the aim of reducing its annual costs by pound34m. The World Service is ending its radio broadcasts to parts of the Balkans, the Caribbean and Portuguese-speaking Africa, to save pound46m. The BBC's Worldwide division, which is run for profit, is selling a magazine-publishing division. Other bits of imperial overreach, such as the Lonely Planet travel-books business and a stake in *Femina*, a magazine for Indian women, seem safe for now.

Among the further suggested salami-slices to emerge from the staff consultation are scrapping low-audience overnight programming on the corporation's flagship television channel, BBC One, and daytime shows on BBC Two. Dropping some costly sports coverage is also being mooted, as well as having more repeats on Radio 4, its most influential radio channel. However, what has not been seriously contemplated is the closure of an entire domestic television or radio channel. One of the main reasons the BBC is now so financially stretched is the high cost of its digital-only stations, including BBC Three, a youth-oriented television channel which now costs pound119m a year, and the more highbrow BBC Four, costing pound74m.

BBC Three has long been regarded, inside and outside the corporation, as a candidate for the chop, but executives staunchly defend it as a means to attract "replenishers"-youngsters who will form the core of the BBC's future audiences. Critics say that pound119m is an awful lot to blow on titillating young couch-potatoes with downmarket shows like "Snog, Marry, Avoid?" and "Hotter Than My Daughter"-especially considering how the corporation's director-general, Mark Thompson, keeps talking about focusing on quality and distinctiveness.



Not only have the extra digital channels failed to stop the decline in the BBC's overall share of viewing (see chart), they have stripped BBC Two of its role as the home for innovative and intellectually demanding programmes. Its resulting identity crisis has meant it losing viewers faster than the other channels. An obvious solution would be to close both Three and Four, moving their best programmes to Two and junking the dross.

Conservatives might normally be delighted to see the BBC-generally depicted as a den of lefties-cut down to size. But the leadership of the ruling coalition's main party is currently gripped by fear that its carefully crafted image of "niceness" may be destroyed in a backlash against reforms of the National Health Service (see Bagehot). Senior Tories might thus prefer to avoid a further public backlash over the loss of any of the BBC's channels. So, salami tactics are more likely than wholesale closures. BBC Four is likely to be stripped down and relaunched as an arts channel, making it a more direct competitor to BSkyB's Sky Arts.

The BBC's lower ranks are filled with gloom over the cuts. But Claire Enders, a media analyst, thinks they are too pessimistic. Through judicious all-round trimming, including spending less on buying in programmes from other producers, the corporation should avoid serious damage to the quality of its output. In the longer term, the number of households in Britain-and thus the number of licence-payers-is set to increase by perhaps 200,000 a year, meaning that revenues will increase even if licence-fee increases are modest.

In the upper echelons of BBC management, most acknowledge that it has grown too big. Changing a lifetime's habit of empire-building will not be easy, though. Some light pruning of the over-heavy top management has begun but, says Ms Enders, the corporation still has too many overpaid chiefs. Indeed, in its expansionary phase it spawned platoons of executives with bizarre titles like "change management lead" and "rewards director".

The BBC, at its best, does more to enhance the quality of life in Britain, and the country's image abroad, than any number of government initiatives. It offers viewers a varied broadcast diet of news, current affairs, documentaries and the arts which is the envy of other countries. But it has grown too big for its own and its competitors' good. Like that other hard-to-reform institution, the NHS, it labours under the weight of bureaucracy and self-praise.

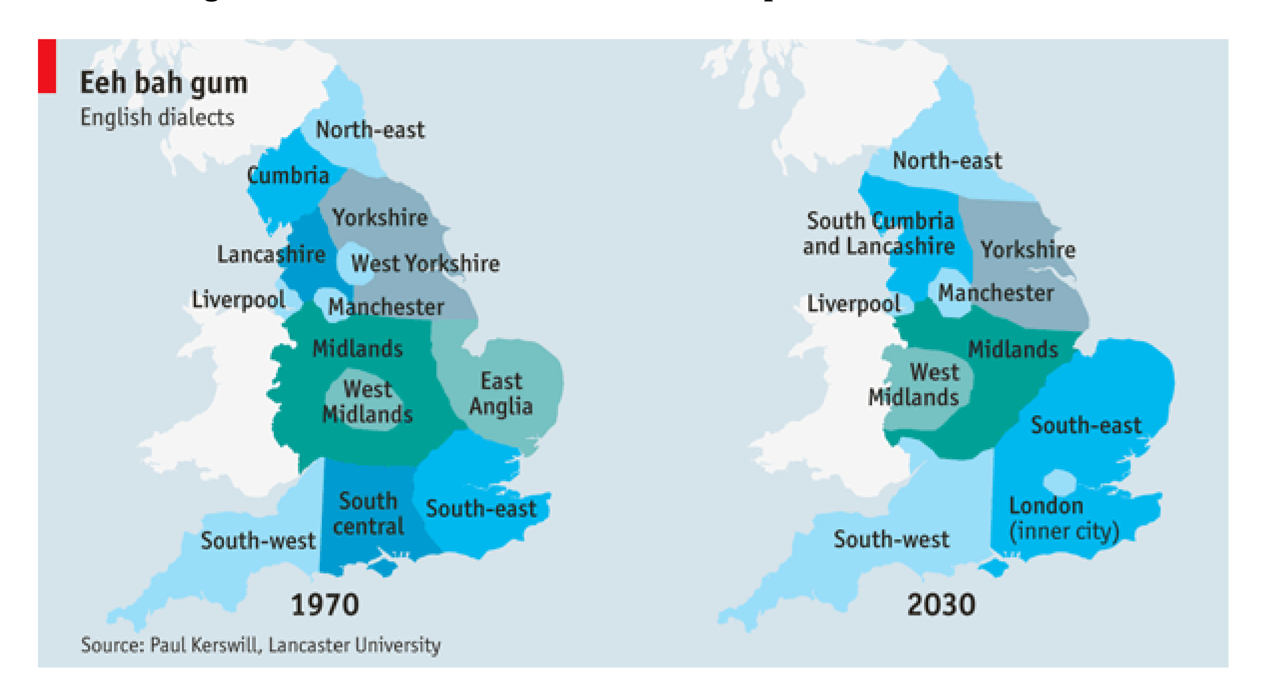
So, Lord Patten is right when he insists that the BBC must be clearer about its future priorities and more ready to make serious economies to protect what it does best. He now has a perfect opportunity to make his mark by telling the corporation's managers what needs preserving, and what must be sacrificed.

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England's regional accents

Geordie's still alreet

Some accents are becoming more distinctive and others more widespread



A FIERCE pride in one's regional roots can be found throughout England. Increased mobility and the ubiquitousness of television and radio have done surprisingly little to homogenise the distinctive accents and dialects that characterise the different parts of the country. Some are spreading; some retreating. Some are mutating; some are even getting stronger. But, overall, the pronunciation and prosody of spoken English seems to vary as much as ever across the country of its birth.

Liverpool's "Scouse" dialect has long fascinated linguists, with its throaty, guttural utterances that emerged from a mixture of Irish, Scots, Welsh and Lancashire accents in the late 19th century. For example, Liverpudlians tend to add a breathy "h" sound to words that end with a "t", lending their distinctive intonation to "what", "that" and "but". According to Kevin Watson, who lectures in "sociophonetics" at the University of Lancaster, this is not lax articulation but rather a conscious effort to soften the uttered word through what he calls "plosive lenition". Older Liverpudlians limit their use of it to words of a single syllable but younger ones have increased the individuality of the Scouse accent by extending it to "chocolate", "certificate" and "aggregate", he says.

Although some aspects of south-eastern "Estuary English" have infiltrated northern parts-replacing the "th" in "think" and "nothing" with an "f" sound, for example-regional accents have largely survived in northern cities, thanks to a relative lack of immigration combined with chirpy civic pride, reckons Paul Kerswill, a colleague of Mr Watson.

Nevertheless, Mr Kerswill's research finds that the distribution of accents across the country is undergoing big changes. While Scouse's Merseyside redoubt is static even as the accent grows stronger, variations of the north-eastern "Geordie" accent, articulated by Cheryl Cole-and cited as a reason for the pop singer's recent removal as a judge on the American version of "The X Factor", a talent show-are not only retaining their distinctiveness but conquering fresh territory (see map).

The Brummie accent, a nasal drone that suggests despondency to anyone outside Birmingham who is lucky enough to hear it, is also spreading as its speakers move west into Wales, where it threatens to snuff out the melodic local lilt. That is because the accents with which teenagers speak are most influenced by their peers, not parents, teachers, television or radio, says Mr Kerswill.

Nowhere is this truer than in the capital. The traditional Cockney accent is fading and is no longer so common even within earshot of the bells of St Mary-le-Bow church in east London, where by legend it was born. Mr Kerswill predicts that, by 2030, Cockney-influenced Estuary English will dominate most of the east and south-east, as Londoners move out. In the capital itself a new dialect, inspired by recent immigration, is emerging: "multicultural London English", heavily influenced by Jamaican with undertones of west African and Indian. Mocked by Ali G, a comic character created by Sacha Baron Cohen, whose catchphrase was "Is it cos I is black?", it is now spoken by teenagers of all hues, united by their pride in urban grime.

The defence secretary

The fox that can't be shot

Why Liam Fox may be safe in his job, in spite of tiffs with David Cameron



A MEDICAL doctor in a cabinet replete with professional politicians, a state-schooled Scot in a Tory party dominated by privileged Englishmen, Liam Fox is nevertheless distinguished by more than his background. His ideology is what really marks him out. There is probably no more conservative member of the government than the defence secretary.

A fractious relationship with David Cameron, the prime minister, who struggles to disguise his disdain for his party's right flank, would therefore seem unavoidable. Sure enough, a mistrust that dates back to 2005, when Mr Cameron saw off a challenge from Dr Fox to win the Tory leadership, has been renewed in government.

As the coalition's austerity plan was being drawn up last year, the defence secretary fought tenaciously to protect his department from deep cuts. He failed, and made enemies in Downing Street and the Treasury. He wrote a letter to the prime minister deploring the government's strategic defence review for contemplating cuts to the armed forces that would diminish Britain's ability to act abroad. It leaked, riling Mr Cameron and George Osborne, the chancellor of the exchequer. When another letter from Dr Fox was leaked last month, questioning the government's decision to create a statutory requirement to spend 0.7% of GDP on foreign aid, Downing Street was irate.

Isolated as he is, Dr Fox's position is nevertheless bolstered by several factors, and not only the lack of evidence that he was guilty of the leaks. First, Mr Cameron would struggle to justify removing Dr Fox after persisting with Vince Cable, the Liberal Democrat business secretary, who barely bothers to hide his distaste for the Conservatives. The Tory right, who have few voices in the cabinet (such as Iain Duncan Smith and Owen Paterson), would not be slow to highlight the double standards.

Second, Dr Fox is well regarded by the armed forces, who recognise his sympathy for their plight. Carrying the defence brief in opposition, he bonded with his Labour opposite number, Bob Ainsworth, over their shared struggle to persuade their party leaders to take the military's low morale and underfunding more seriously.

But the biggest factor in Dr Fox's favour is the growing perception that he was prescient to warn of the impact of defence cuts. Mr Cameron's zealous intervention in Libya, which came just a few months after he signed off on the spending reductions, has drawn attention to the gap between British ambitions and British resources. There is thought to be concern in Washington at the prospect of a close ally downgrading its military capabilities. (America, incidentally, captures the gap between Dr Fox and the Tory leadership like nothing else: he strives to maintain contact with the Republicans; Mr Cameron's people are fervent fans of Barack Obama.)

His enemies accuse Dr Fox of an incoherence that is typical of the right: craving a smaller state but complaining of cuts to favoured causes. But the charge of hypocrisy misrepresents the right's position. Most rank-and-file Tories are traditional conservatives rather than fiscal hawks. They favour lower taxes and spending, but not to the detriment of defence and law and order. They are open about their preference for making cuts to the NHS and aid rather than to the armed forces and prisons. That is a choice, not a contradiction. It is also a political problem for Mr Cameron and Mr Osborne: austerity, as it begins to bite, will not upset left-leaning voters alone.

Dr Fox is thought still to harbour leadership ambitions. He cultivates backbench MPs and activists assiduously. He might have the Tory right to himself in a contest today, as most of his probable rivals-such as Mr Osborne, with whom the defence secretary shares a certain hawkishness on foreign policy, and Jeremy Hunt, the culture secretary-are "modernisers". He is the embodiment of the striving classes that his posher colleagues struggle to understand; his parents purchased the council house he grew up in when Margaret Thatcher introduced the right-to-buy in the 1980s. There may not be a vacancy at the top of the Tory party for years but, at 49, he can afford to wait.

Still, even those sympathetic to Dr Fox doubt his leadership prospects. There is no backbench tribe of "Foxites". Presiding over defence cuts could leave him short of positive achievements to boast of, though the government's decision to enshrine in law the military covenant (the state's duty of care to soldiers and their families) was a small victory for him. Above all, there is his ideology. Such deep, faith-powered conservatism (Dr Fox is a Catholic) struggles to sell in Britain. Tory activists and MPs generally prefer winners over true believers. Dr Fox is likely to hang on to his current job, unless he chooses to walk away. He is less likely to climb much higher.

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Parliamentary expenses

The never-ending scandal



More than two years after stories of expense-fiddling first disgraced Parliament, guilty parties are still receiving their come-uppance. Lord Taylor of Warwick, a Conservative peer, was jailed for 12 months on May 31st for falsely claiming over pound11,000 from the taxpayer. He was found guilty earlier this year of listing his main residence wrongly, and making unwarranted claims for travel. He first came to prominence in 1992 when he failed to win the safe Conservative seat of Cheltenham, in the west of England. There were suggestions that some local Tories refused to vote for a black candidate. His fall is a reminder that the expenses scandal has tainted all the main political parties (a few Labour MPs have been jailed) as well as both Houses of Parliament. He may not be the last culprit to serve time in prison. Another Tory peer, Lord Hanningfield, was recently convicted on six counts of false accounting and will soon be sentenced.

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Private care homes

When carers fail

Southern Cross's problems are a business failure, not a policy failure



Maintaining the continuity of care

COMPANIES run out of cash, go bust and disappear all the time, mostly without causing widespread public concern. But when their business involves the residential care of elderly, sick or vulnerable people, it is a different matter. Southern Cross, Britain's biggest private care-home operator, has been faltering since 2008. On May 31st its management sought a four-month reduction in rent payments to landlords, to give it time to sort out its finances. With the role of private providers in health and social services expanding, what now happens to Southern Cross and its residents will be widely watched.

Those wary of government plans to increase the role of private firms in public services will no doubt see Southern Cross's problems as confirming their doubts. There is certainly plenty to criticise in the way the company, which hosts 31,000 of the estimated 230,000 residents in Britain's care homes, was run. It financed its rapid expansion by selling the properties of firms it acquired and leasing them back at high rents. Its assumption was that bed fees would keep rising as Britain greyed, and increasing numbers of elderly people came shuffling through its doors. However, local councils' spending on expensive residential care was cut and non-residential services to the elderly were improved, allowing many frail old people to stay at home.

Southern Cross is not the first care firm to mess up its finances. In 2010 similar troubles led to a restructuring at Orchard Care Homes, a smaller provider. Care Principles, an operator of hospitals for the mentally ill, handed its business over to Barclays Capital in April 2009 after a highly leveraged private-equity deal failed to deliver on its promise.

Despite their financial failures, however, these companies' homes stayed open and the care of their residents and patients was uninterrupted. In America, where private care homes have a longer pedigree, bankruptcy has often resulted in debts being restructured and shareholders losing money, but less frequently in homes closing. In the case of Southern Cross, most of its 750 homes are also likely to keep operating, predicts William Laing of Laing & Buisson, a health-care consultancy.

Yet Southern Cross's mismanagement also provides a salutary case study for the rise of private operators more widely. Although Britain's ageing population convinced the firm's backers that elderly care was a sure bet, they perhaps underestimated the effects of increasing choice and competition on the market: occupancy levels at the company's homes have fallen every year since 2006, not because of its wobbly financial structure, but because the quality of its homes was below average, so customers went elsewhere. It was also over-reliant on local-government funding: only 20% of residents in Southern Cross homes are self-funding, as opposed to a national average of 40%.

Adding to the anxieties about private care, on May 31st "Panorama", a BBC television investigative programme, aired a report showing widespread abuse at a facility for the mentally ill near Bristol. Four people were arrested, and the Care Quality Commission, the industry's regulator, promised an immediate review.

The BBC's revelations suggest serious shortcomings at the regulator: its chairman admitted it had failed to follow up repeated reports of poor treatment of residents it had received from a senior nurse at the home. But Southern Cross's case is one of business failure, not policy failure. The lesson is not that private provision is inherently bad; it is a more familiar one about the risks of dramatic expansion funded by excessive borrowing secured on property.

Even so, as private-sector involvement in public services grows, there are bound to be more cases that provoke queasiness about the whole idea of providing care for profit. In the wake of the financial crisis, banking regulators are working on a "resolution regime" to ensure that failing banks are dealt with swiftly and with the minimum of economic damage. Putting some work into mechanisms to cope with collapses of private health- and social-care providers might be just as worthwhile.

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High-street banking

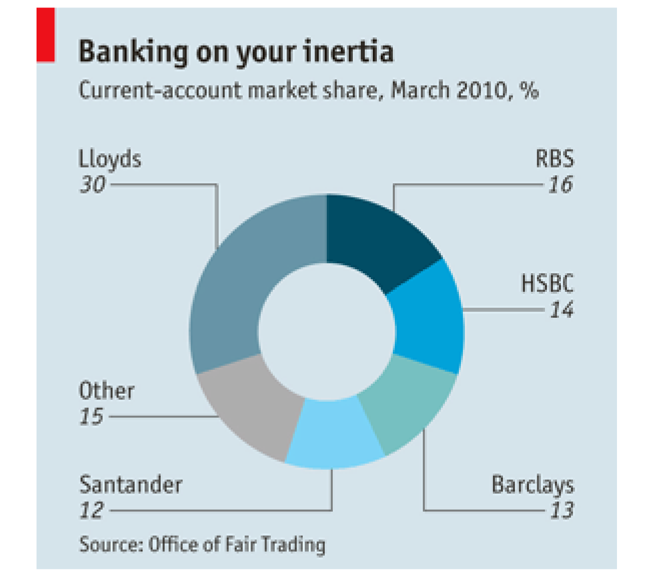
Crouching banker, hidden charges

Most Britons hate their banks but finally look like getting a real choice

BRITISH banks have been the subject of official worrying since at least the 1960s, with successive commissions struggling to understand why competition is so stilted. All their weighty reports and sensible recommendations changed little. Now, with the arrival of a wave of new entrants, the chances of a real shake-up in high-street banking seem to be growing.

Unhappiness with banks is not uniquely British. However, Britain does stand out for two things. The first is that its retail banks have emerged remarkably profitable from the financial crisis. Margins on credit cards and mortgages have widened over the past two years and bad debts have fallen. In contrast, retail banks in America have seen margins squeezed. One reason is that British banks have been particularly successful at seeming to compete fiercely on headline rates while making big profits from charges that consumers do not notice until they turn up on their statements. Current accounts (checking accounts to Americans) are free, yet banks rake in pound2 billion a year from penalty fees on customers who go overdrawn, according to a recent study.

The banks have also profited from cross-selling other financial products to account-holders-though the consequences of their pushy sales techniques are now coming back to haunt them. Last month the banks gave up fighting compensation claims worth billions of pounds from customers mis-sold loan-insurance policies; and HBOS was fined pound3.5m and will have to pay pound17m in compensation for mishandling customers' complaints that they had been sold inappropriate investments.



A second feature of British banking is the remarkable, not to say irrational, loyalty of bank customers, despite their dissatisfaction with fees and customer service. The Office of Fair Trading (OFT) found that before the financial crisis only about 6% of bank customers switched their primary accounts each year. Since the crisis, regulators have made switching easier, yet bank customers may be even less likely to move because of unease about the health of the banking system. Consolidation in the wake of the crisis means that five banking groups now dominate the provision of current accounts (see chart).

However, the chances of more vigorous competition are growing, Santander, a Spanish bank, is set to become a stronger competitor to its four larger rivals, having agreed to buy 318 branches of Royal Bank of Scotland. Their sale was ordered by the European Commission as a condition of approving RBS's government bail-out. Lloyds, which took over HBOS with state help during the crisis, is likewise being forced to sell 600 branches (and their customers). Also up for sale is the branch network of Northern Rock, a mortgage lender that collapsed in 2007. A bevy of potential buyers is emerging for both, including Sir Richard Branson's Virgin Money.

Some long-awaited new entrants to British banking are finally arriving. Sweden's Handelsbanken recently opened its 100th British branch. Vernon Hill, whose Commerce Bank expanded from a single branch in America to a network of 435 before he sold it, this week opened the seventh British branch of Metro Bank. Executives at rival banks sneer that Metro's progress is pretty slow. Yet that is to understate its broader significance, which is that its innovative use of technology shows how the main barriers to entry in British banking are now easily overcome. The OFT reckons that up to two-thirds of the start-up costs of a new bank are in its computer systems. Under Metro's deal with Temenos, a software firm, it pays a monthly fee per customer, reducing the upfront costs and risks of starting a bank.

Greater change may yet be on the horizon in the form of Tesco Bank, part of Britain's largest supermarket chain. It currently offers only loans, credit cards and savings yet is thinking hard about current accounts. Tesco could have a huge advantage over existing banks because of the data it already collects on customers' shopping. Its boffins are trying to figure out, for instance, whether they can predict the risk of a loan's default by looking for changes in weekly shopping patterns.

Its other big advantage is that, as shown by a survey this week from Mintel, a market researcher, Britons are far more satisfied with the service they get from their supermarkets than from their banks. If Tesco and its fellow grocers can tap into this loyalty as they expand into financial services, the traditional high-street banks will have something to worry about.

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Scottish law

Judge me not

A fuss over a London court's overruling of Scottish judges



Scots judges rule, the Supreme Court overrules

POLITICIANS hate it when judges start "making the law". Scots are proud of their separate legal system, which has survived centuries of union with England. So it was perhaps inevitable that when Britain's recently created Supreme Court began exercising its right to review some criminal cases from north of the border, Alex Salmond, Scotland's nationalist first minister, would protest.

By long tradition, appeals in Scottish criminal cases were heard by courts in Scotland, with no resort to higher British ones. But devolution, in 1998, transferred responsibility for legal matters to the Scottish Parliament, and defined the Lord Advocate-who heads Scotland's criminal prosecution service and is appointed by the queen on the advice of the first minister-as a government minister. And devolution law says that actions by ministers, and those who work under them, must conform to human-rights law.

The Privy Council's judicial committee, based in London, subsequently heard several Scottish appeals on human-rights grounds without much fuss. But since its powers in this area were transferred to the Supreme Court on its creation in 2009, Scottish defence lawyers have appealed to the new court over several more controversial cases, in which they argued that police or prosecutors breached their clients' rights.

Of six such cases the Supreme Court has heard, it has upheld two. In one, it outlawed a Scottish police practice of interviewing suspects for up to six hours without legal representation (which cops cannot do elsewhere in Britain), forcing the abandonment of hundreds of pending prosecutions. Now, in a second, it has overruled the Scottish appeal court and decided that prosecutors in a murder case, by withholding pivotal evidence, breached the accused's right to a fair trial.

Mr Salmond is affronted, saying it was "totally unsatisfactory" that a court of mainly English judges should second-guess Scottish courts. (Supreme Court cases are heard by five judges, two of them Scottish if the case is from north of the border.) Mr Salmond's justice secretary, Kenny MacAskill, is threatening to withdraw the pound477,000 a year the Scottish government contributes to the running costs of the Supreme Court, dubbing it an "ambulance-chasing court".

On May 31st Mr Salmond's cabinet decided to set up an expert group to suggest ways of ending the Supreme Court's Scottish criminal jurisdiction. This ignores recommendations made in March by a similar group set up by the Advocate General, Lord Wallace, who handles Scottish legal matters for the British government. It said the Supreme Court should carry on hearing Scottish criminal appeals because this would be a faster way to bring Scots law into line with international practice than taking cases to the European court in Strasbourg, Mr Salmond's preferred alternative.

Mr Salmond, however, may be less concerned with Scots law being anglicised-which it somehow managed to avoid during three centuries of rule from Westminster-than with opening up a row over supposed English oversight of a Scottish institution. This chimes nicely with his drive to persuade Scots to vote to break away from the rest of Britain in a

referendum he will call in 2014-15. It also fits neatly with his strategy for achieving that by binding interest groups such as lawyers to his cause.

Bagehot

The Lib Dems draw blood

Coalition squabbles over the NHS put a wider reform agenda at risk



IN OLD-fashioned zoos, animals that mauled a keeper were taken away and shot. Once a furry inmate acquires a taste for human flesh, the theory went, it can never be trusted again. The junior partners in Britain's coalition government, the Liberal Democrats, have just taken their first big bite out of the Conservatives, demanding that a plan to reform the National Health Service (NHS) be delayed and stripped of its boldest elements.

Plenty of Conservative MPs would dispatch the Lib Dems now if they could. Many never trusted their coalition partners, and Lib Dem attacks on the NHS plans-notably their calls to slow and dilute reforms promoting market-based competition-have confirmed their worst suspicions.

The scrap leaves Tory centrists on the defensive. Modernisers around David Cameron have spent the past year arguing that, when times are hard and tough policies are needed, a coalition government is a better vehicle for promoting radical reform than a purely Tory government would have been, especially one hobbled by a narrow parliamentary majority. As modernisers tell it, because voters can see two parties from different political traditions thrashing out policies together, they are more willing to accept that the coalition's bolder plans are in the national interest, and are not just a plot by "nasty" Tories.

Those arguments in favour of coalition rule now face a stern test. Senior allies of Nick Clegg, the deputy prime minister and Lib Dem leader, are remarkably candid about the three-part process that led up to their mauling of an NHS reform bill (a bill that Lib Dem MPs had earlier supported on its first trundle through Parliament). First, the NHS is uniquely precious to British voters, Clegg allies note: no other institution can match its status as a totem of state benevolence. Second-despite Mr Cameron's efforts to present himself as a defender of the NHS-the Conservative Party as a whole remains "massively vulnerable" to suggestions that they are planning to privatise the health service. Third, the Lib Dems were hammered on May 5th in local and regional elections, as well as in a referendum on whether to change Britain's electoral system. Private polling after that drubbing revealed that disgruntled Lib Dem supporters were unimpressed by talk of Mr

Clegg securing policy wins within the coalition. Angry ex-Lib Dems wanted redder meat: proof that Mr Clegg was stopping wicked Tories from doing wicked things.

Put those three factors together, and a row about health was "exactly the right issue" for a party looking to demonstrate its new doctrine of "muscular liberalism", says an ally of the deputy prime minister. In private, Mr Clegg still supports reform of the NHS, including greater use of non-state providers (though he thinks the political presentation of the reforms by the Tory health secretary, Andrew Lansley, has been wretched, and that the changes could have been achieved without new legislation). But given a chance to craft a political narrative about nice Lib Dems saving the NHS from nasty Tories, admits the Clegg ally, "we're going to get our pound of flesh."

What does all this reveal about Mr Cameron's coalition? Were Conservative modernisers right to argue that two-party government makes difficult reforms easier to pull off? Or has the NHS row confirmed a deeper Tory hunch: that just as leopards have spots, Lib Dems are perfidious and sneaky, making the coalition an obstacle to bold policymaking? There is something to the first argument and, alas, the second too.

On the positive side of the ledger, the coalition set important reforms in motion in its first year. The two parties agreed to eliminate the budget deficit within one parliament, to give state schools much more autonomy and to redesign the welfare system so that taking a job almost always pays. Both Mr Cameron and Mr Clegg remain publicly committed to those reforms: many Lib Dems disagree, so Mr Clegg deserves credit for his consistency. Attacking the Tories on health offered a unique political prize, says a Lib Dem source, but his party is not going to make a habit of it: "you can't be a party of opposition in government."

A Conservative minister is warier. The NHS row is a big event but an unreliable guide to coalition dynamics, he says. Nothing else is as sensitive as health policy, and the Lib Dems have been supportive elsewhere. Yet, he adds, it will have big consequences if the Lib Dems develop a taste for playing the "nice" party in the coalition.

Violence begets violence

The NHS row already matters. In the government's heady first months, says a Lib Dem source, it seemed as if an ideological synergy between Mr Clegg and Mr Cameron-and those around them-generated radical policies almost "automatically". From now on, he admits, the coalition will be more "businesslike", and each party leader will need to commit serious political capital if he wants backing for fresh reforms dear to his camp.

Even that may be too sunny a reading of the past few weeks. After May's bruising elections and referendum (during which, to be fair, Conservative Party proxies launched personal attacks on Mr Clegg), the Lib Dems have now stoked public suspicions that Mr Cameron cannot be trusted on the NHS.

There is a lot that still needs fixing in Britain, including the NHS. This coalition in-fighting must stop. By instinct, many Lib Dems are drawn to obstructionism atop the moral high ground. They should resist. By instinct, many Tories are overly suspicious of alliances-and have gained more than they care to admit from coalition rule. Coalition blood has been drawn, and trust damaged. Luckily, in politics self-interest is a pretty good substitute for trust. Britain's two governing parties have a vital interest in making their partnership work.

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Genocide

The uses and abuses of the G-word

Genocide is the ultimate crime. All the more reason to use the word carefully



NO LESS than the act itself, "the politics of genocide can be heartbreaking." That is what Sophal Ear, who fled Cambodia as a ten-year-old and now works as a politics professor in the United States, remembers feeling as a young man.

His father was among the 1.7m victims of mass killing by the Khmer Rouge; by pretending to be a Vietnamese citizen, his mother spirited him and four other children to freedom. Yet before last year, when four suspects were indicted for genocide, most murders by his homeland's communist tyrants were not seen as genocidal in the legal sense, because killers and victims belonged to the same ethnic and religious group. Among the many crimes of Pol Pot's regime, only the killings of minorities like ethnic Vietnamese, or Muslims, fall neatly into the category of genocide.

Many people, faced with any of the scenes created by systematic slaughter during the 20th century would simply say: "I may not be a lawyer, but I know genocide when I see it." The reality of genocide may be easy to grasp at a gut level, yet its definition is complex. Prosecutors, judges, historians and politicians have made huge efforts in recent years to describe the boundaries of genocide: when mere mass murder stops and the ultimate human crime starts. Yet the term is far more than a tool of historical or moral analysis. Its use brings momentous political and legal consequences-and is therefore bound to be highly contested.

Such thinking pervaded bureaucratic debates in Washington, DC, in 1994 as news of massacres in Rwanda emerged. As Samantha Power, an author who works for President Barack Obama, has disclosed, a paper by a Pentagon official urged caution in using the G-word: "Be careful ...Genocide finding could commit [the government] to actually do something."

Plain facts, muddy language

Even when the facts are clear, the vocabulary may not be. The killing of up to 8,000 Muslim men and boys near Srebrenica in Bosnia, in 1995, has been widely described as a genocidal act; that is why its alleged mastermind, the Bosnian-Serb general, Ratko Mladic, was extradited to The Hague this week. Yet even in the Bosnian context, the word genocide has been challenged; prominent figures, who do not doubt the vileness of the war, raise questions about the proper legal category.

They include William Schabas, a Canadian law professor who heads the International Association of Genocide Scholars. He has stirred a furore by arguing that since many authorities reject the use of "genocide" to describe the whole military campaign by the Bosnian Serbs (or those of other war parties), it may not make sense to single out one episode in the war as genocidal; either there was a general bid to exterminate or there was not.

This thinking does not, he insists, diminish the horror of Srebrenica or of genocide-like acts in general. But he thinks the world should focus more on "crimes against humanity"-defined as killing and other inhumane acts when committed as "part of a widespread or systematic attack ...against any civilian population." Such felonious deeds should not be seen as a "discounted form of genocide" but as an extreme form of wickedness; they were, after all, the precise charges against the Nazis convicted at Nuremberg.

The starting point for any definition of genocide is clear and fairly familiar. The United Nations in 1948 adopted the Convention on the Prevention and Punishment of the Crime of Genocide, which describes "the deliberate and systematic destruction, in whole or in part, of an ethnical, racial, religious or national group." That formula is incorporated in the statutes of the Hague-based International Criminal Court, which since 2002 has stood ready to try terrible atrocities if national courts fail. In scores of countries the convention is also part of domestic law.

The prime mover of the convention, Raphael Lemkin, had been pressing since the 1930s for the adoption by world institutions of a broad ban on the mass slaughter of groups; he said later that he had been mainly motivated by the mass slaughter of Ottoman Armenians in 1915. The text was readily adopted in a climate of horror over the Nazi Holocaust of Jews as well as of Roma and other despised groups.

The convention's provisions are remarkable for what they do and do not cover. They exclude-at the insistence of the Soviet Union, for obvious reasons-the mass killing of "class" or political enemies. But they include as genocidal any measures to limit births within a group, and the transfer of children of one group to another. China's one-child policy would not count-because it applies to ethnic Chinese-unless it were brutally enforced on, say, Tibetans. Armenian nationalists enraged Mikhail Gorbachev, the then Soviet leader, by protesting over the adoption of orphans by Russians after the 1988 earthquake there. But they had law on their side.

The special courts considering Rwanda and the Balkans have expanded the jurisprudence of both genocide and crimes against humanity. The Rwanda one has stressed that the genocide charge requires proof of a plan; and that the victims were killed solely for membership of a group.

Mr Schabas sees two trends in the definition of genocide. First, judges and legal scholars have been cautious: the ICC judges, he points out, took a lot of persuading to issue an arrest warrant for genocide against Sudan's president, Omar al-Bashir. Even the fact that they finally issued it does not mean they are persuaded that the G-word can stick. Meanwhile, social scientists and historians have widened the use of the word, to include, say, the destruction of cultures and languages, or the decimation of tribes. Indigenous peoples, for example, have died in big numbers because they were vulnerable to the diseases borne by colonisers. The effect is genocidal, whether or not there was a plan.

Judges and lawyers have to be precise because their opinions have precise effects: for historians, a perpetual testing and redefining of categories comes naturally. But that does not make the historian's work easy or free of heartbreaking consequences: witness the endless row over the mass killings of Armenians.

Only an open debate can resolve those questions. It does not help that asserting an Armenian genocide is a criminal offence in Turkey, whereas denying it is against the law in Switzerland. (France's lower house adopted a similar measure but was overruled in May by the Senate.) Arrest warrants may be the right way to deal with *genocidaires*, but they have no place in the study of history.

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Gmail under attack

Something phishy

A Chinese cyber-attack on a jumpy America



Chinese crackers munched Google

THE more onerous internet security in the office becomes, the more attractive easy-to-use services such as Google's Gmail. This paradox is at the heart of what looks like a big cyber-attack by China (or Chinese hackers) against the private e-mail accounts of hundreds of senior officials, military types and journalists from America and Asian countries, chiefly South Korea.

Google says it has "detected and disrupted" this campaign, first noted in February by a blogger, Mila Parkour. Unlike previous Chinese attacks on Google, which involved heavyweight cryptographic attacks on its software, this one was clever but simple. Targets received plausible-seeming "phishing" e-mails, often sent from faked State Department addresses, with a subject line such as "Fw: Draft US-China joint statement" and an attachment. Clicking on that produced a bogus Gmail screen. Anyone unwise enough to give their login and password would make their past and future e-mails, and contacts, available to the snooper.

Google has tense relations with the Chinese authorities. In 2010 it stopped co-operating with their censorship efforts, moving its servers to Hong Kong; it is struggling to renew licences it needs for its other operations (it still employs 500 people in China, many of them selling advertising). Now it is talking to the FBI.

But the target of the attack is Google's customers. The Chinese government denies having any part in the scam, but the e-mails seem to have come from the eastern city of Jinan, home to a Chinese military cyberwarfare unit and a college blamed for other attacks on America. This one comes at a time when people there are already jumpy about electronic security. Lockheed Martin, the government's main information-technology provider, said last week that it had experienced a "significant and tenacious attack". A forthcoming Pentagon report says that cyber-attacks could in future prompt a military response. Shooting careless officials would be a start.

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Drug policy

Supply and demand

The argument over treatment is being won. Now for the battle over supply

NARCOTICS liberalisation was once the cause of freethinkers and hippies. Now a more sober bunch is criticising the "war on drugs". On June 2nd the Global Commission on Drug Policy, a group including ex-presidents of Brazil, Mexico, Colombia and Switzerland; the prime minister of Greece; a former secretary-general of the United Nations; and, from

America, an ex-secretary of state and ex-chairman of the Federal Reserve, called for the decriminalisation of all drug taking, and for experiments in the legal regulation of the sale of drugs, starting with cannabis.

Calls for a rethink of the 50-year-old policy of prohibition have been growing. As the report pointed out, drug consumption has continued to rise, even as billions of dollars and tens of thousands of lives have been spent trying to stamp it out. In the ten years to 2008, the most recent data available, the number taking cannabis worldwide increased by 8.5%, of cocaine by 27%, and of opiates by 34.5%. America's federal government alone spent $15 billion in 2010 on drug control; perhaps $25 billion more went in other public spending.

Prohibition has brought many short-term wins but no lasting ones. The authorities drove cocaine smugglers out of the Caribbean in the 1980s. But they then popped up in Mexico. A campaign against "narcos" there has cost at least 35,000 lives in the past five years-and is driving them into the chaotic countries of Central America. Guatemalan officers found 27 headless bodies near the Mexican border last month, and blamed the Mexican Zetas "cartel".

A similar merry-go-round is spinning in the Andes, where production driven out of Peru and Bolivia and into Colombia in the 1990s is now being swept back in the other direction. As cocaine taking has fallen in America it has risen in Europe: Latin American "cartels" have diversified their export strategy (wrecking parts of West Africa, a convenient staging post, along the way).

The Global Commission backs basic measures to protect drug takers and save money: providing clean needles, for instance, does not stop people taking the drug, but does stop them getting infected. In Britain, Germany, Switzerland and Australia-which all got on the clean-needle bandwagon early-HIV rates among injecting drug takers are lower than 4%. But they are more than 12% in France, and over 15% in America and Portugal, which came late to the idea. Thailand and Russia, still not keen, have rates of around 40%.

Prescribing heroin, as Switzerland and the Netherlands do, seems to cut the number of users a lot, as dealer-addicts are taken out of the equation, breaking the link between wholesalers and casual customers. Decriminalising the possession of cannabis in Western Australia and Portugal (which decriminalised possession of all drugs in 2001) had no impact on consumption, but saved a lot of money. A study of American states found no link between the diligence of enforcement and changes in user numbers. When Britain reclassified cannabis as a less serious drug in 2004, consumption slumped. (Despite that, the government backtracked five years later.)

Going easy on users may save money and lives. But many in Latin America worry that decriminalising only consumption will increase demand but do nothing to take the trade away from criminals. The Global Commission had much less to say on the question of legalising supply, calling only for more "experimentation" with models of legal regulation, and lighter sentences for small-scale dealers. That would do nothing to deter outfits like the Zetas.

Debates on legalisation are vetoed by consumer countries, which fear an increase in addiction were drugs to be made more freely available. For embattled transit countries such as Mexico, where a former president, Vicente Fox, has called for supply and distribution to be legalised, that is a gamble worth taking.

The gulf in opinion may narrow. The traditional distinction between producer and consumer countries is blurring, as drug use grows among producers and domestic output grows among the consumers. Cocaine use has been rising in South America, where average rates of lifetime use are now about the same as in Europe. In Mexico the rate doubled between 2002 and 2008 (though it is still well below America's). At the same time, cannabis cultivation is big business in America and parts of Europe, and crystal meth can be cooked up anywhere (though it is easier where law enforcement is weak). As the drug problems of the rich and poor world converge, governments may be more likely to see eye to eye.

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Censuses

Costing the count

Old style censuses are cumbersome and costly. Reform is coming



A snag for America's census takers

CENSUSES are as old as civilisation and governments are increasingly following the United Nations benchmark of tallying their people once a decade. Keiko Osaki-Tomita of the UN Statistical Division says that a record 70 territories are holding censuses in 2011. Only Iraq, Lebanon, Myanmar, Somalia, Uzbekistan and Western Sahara will fail to hold a count in this ten-year round.

The big growth in censuses is in Africa, but changes in the way they happen are coming from Europe. Fears of Germany's anti-census lobby (which liked to chant "Only sheep let themselves be counted") blocked counts for 24 years after 1987-a gap exceeded only by places such as Angola. Change came with a new European Union law requiring decennial headcounts. But the 80,000 census takers who were at work in May did not depend only on the house visits that privacy-conscious Germans find so troubling. Instead they culled data from national employment records and local population registers. Only around 10% of citizens were randomly selected for old-style surveys (with a stiff fine for those refusing to respond).

During this census round (which ends in 2014), 17 European countries will use government databases in some way. In nine, government-held data will be the only source of information.

Door-knocking is not just unpopular. It is costly. Finland, one of the first countries to ditch its shoe-leather census, saw expenses fall by more than 90% between 1980 and 1990, and now completes its counts for around euro1m ($1.44m) for 5.3m people. America's $13 billion census last year cost around $42 per head. Door-stepping is dangerous too. 15 census officials were killed during South Africa's count in 2001.

Pete Benton, deputy director of the British census, says that using databases means that counts can be more frequent. That saves money too-gearing up once every ten years is expensive. And the long gap between traditional censuses is a growing problem as people become more mobile and households more flexible. Britain aims to decide by 2014 if it will bin the old methods for the 2021 census.

New approaches are harder for countries that do not keep a central population register. Continental European countries like Germany impose a legal duty on citizens to register their residence with the local authority. Others, like Britain or America, keep information in quite separate databases-dealing with, say tax, pensions, elections, passports, driving licences and health care. Some countries label their citizens with single identifying numbers. Elsewhere, that's loathed. Even in well run Finland, the census-takers have to combine information from several dozen different data sets; efforts to link them started fully 50 years ago. High levels of immigration can also make government data unreliable, says Kevin Deardorff, of the American census office.

Modern-minded American statisticians also face thorny legal questions: the constitution calls for an "actual enumeration" of the population. That may make newfangled census methods vulnerable to challenges from the courts. A Supreme Court ruling already limits the use of statistical sampling, which adjusts survey data to include more accurately minorities, who are generally undercounted by older methods. In December the Government Accountability Office noted that the census's cost has on average doubled each decade since 1970. Without "fundamental reforms", the next one could cost $30 billion.

Yet recent censuses in Asia have proven that even the most mammoth old-fashioned headcounts can be done cheaply. In February India's census authority completed a year-long effort of tallying and biometrically registering its 1.2 billion residents. The census part cost just over 40 US cents per head. In November China's ten-day survey, carried out by 10m census workers, counted 1.34 billion people for what it said was the equivalent of $1 a time.

Governments rarely reckon that they need to know less. Indeed, says Mr Benton, "Sometimes the more information you have the more you want." But how best to collect it? More data please.

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Monitor

Any mileage in the idea?

Transport: Schemes to get cars to travel in "platoons", like the carriages of a train, are making slow progress. They face more than just technical obstacles



PERSUADING drivers to give up their cars in favour of public transport has always been an uphill struggle. So would a technology that lets drivers remain in their cars, but asks them to relinquish control on long journeys, have any greater chance of success? That is what a European project is hoping to find out by getting cars to link up wirelessly into semi-autonomous convoys, also known as road trains or "platoons".

The idea is that by joining platoons as they snake along motorways under the control of a professional lead driver, motorists will be able to sit back and enjoy the ride. As passengers they could catch up on some reading, watch a film, surf the internet or even have a snooze. The benefits would come from reduced congestion and lower fuel consumption. Somewhat counter-intuitively, platooning might also make roads safer.

The environmental benefits come from reducing drag, says Tom Robinson of Ricardo, a British company which is co-ordinating the euro6.4m ($9.1m) Safe Road Trains for the Environment (SARTRE) project, funded by the European

Commission. The reduced drag is the result of slipstreaming, a trick exploited by Formula One drivers and racing cyclists. The low-pressure area in the slipstream of a moving object means less energy is needed to maintain the same speed just behind it. Trying to do this behind a big lorry on a motorway is extremely dangerous. But with the aid of wireless technology it should be possible for cars to drive much closer together, under computer control, than would normally be advisable. The lower drag they encounter should improve fuel consumption considerably.

The gap between platooning vehicles will be small, but computer-controlled systems would respond to any sudden braking or other hazards far more quickly than a human driver could and thus avoid collisions, says Mr Robinson. The close spacing would allow more cars to fit on the road, reducing congestion.

All this requires a lot of technology. Any car wishing to join a platoon would specify its desired destination, making it possible to identify a nearby platoon heading the right way. The car then pulls up behind the moving platoon and a wireless standard developed specifically for communications between vehicles, called IEEE 802.11p, enables the car to be enslaved by the lead vehicle, probably a lorry or coach with a qualified driver. The car stays under the control of the leader until its driver wishes to leave the platoon.

As ambitious as this sounds, it is more than just theory. Earlier this year the members of the SARTRE project carried out their first road test. The initial goal was modest: to put a single car under the control of a lorry, with both travelling at 50kph (31mph). After the success of these first tests the speed was pushed up to 70kph, and this summer the first multiple-vehicle tests will begin with up to three cars and two lorries. The researchers will then be ready to leave the test track, says Erik Coelingh, head of active-safety functions for Volvo, a carmaker that is one of the SARTRE members. "During the autumn and winter we will refine the controls, and if we succeed we would like to test the same system on public roads in Spain during summer 2012," he says.

Platooning is not a new idea. In the 1990s a project in San Diego called PATH carried out small-scale tests of a system that involved placing induction loops in the road which acted as electromagnetic rails to guide vehicles along the highway. The idea never took off because it was prohibitively expensive. But SARTRE is different, says Mr Robinson, because it does not require any changes to the road infrastructure.

Moreover, aside from the wireless-communication system, SARTRE works by taking advantage of the actuators and sensors that already exist in many modern cars, such as adaptive cruise control, automatic braking and lane-departure systems, which use radar, infra-red sensors and cameras. "We reuse the sensors and part of the control system, but add new algorithms," says Mr Coelingh. So once a car has joined a platoon these systems make it relatively easy to stay in line. The driver at the front would be trained, licensed and paid to lead. As well as steering, he would have to take account of the platoon's impact on other traffic when changing lanes or turning. The rest would be taken care of by software.

The technology is not quite there yet, concedes Mr Coelingh. Strategies still need to be precisely worked out to enable vehicles to join or leave safely, even if they are in the middle of the platoon. Similarly, methods will be needed to allow the lead vehicle to dissolve the platoon on reaching its destination or to allow another lead vehicle to take over. The researchers must also determine how closely packed together the cars should be to get the best fuel savings and highest level of safety.

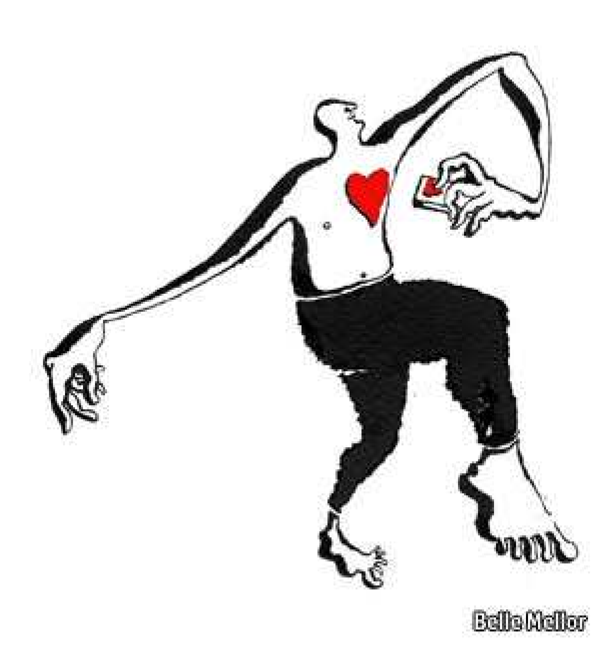
Mr Robinson and Mr Coelingh accept that the success of platoons is more than just a question of whether or not the technology can be made to work. The real question is whether drivers really want it. Driver attitudes towards automation are softening, Mr Coelingh believes. And there are occasions, such as during a daily commute, when motorists might welcome not having to drive. However, drivers are currently required to be in control of their vehicles at all times, and in many places it is illegal to use a mobile phone when at the wheel. So laws will also have to be changed, says Mr Robinson, which could take a decade or so.

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Monitor

A wireless heart

Biomedicine: Better artificial pumps, powered wirelessly by induction, offer hope to those who cannot get transplants



DICK CHENEY has no heartbeat. That might sound like the punchline to a political joke, but for the former American vice-president it is deadly serious. Mr Cheney is one of thousands of people around the world who have a "left ventricular assist device" (LVAD) implanted in their hearts. LVADs-mechanical pumps that take the stress away from a failing heart by moving blood smoothly around the body without generating a pulse-have become smaller and more reliable over the years since their introduction in 1994. They were originally designed as a stopgap to keep a patient alive for a few extra months while a suitable transplantable heart could be found. But improvements in the technology, and a lack of donor organs, mean they are increasingly used on a long-term basis.

One area in which they have not improved, though, is their power supply. The pump requires an electric cable, called a driveline, that runs through the abdominal wall to a battery pack in a harness. This device, which must be worn all the time, hampers mobility, makes it awkward for the wearer to shower (and impossible to swim) and makes driving impossible because even a minor accident that dislodged the driveline could be fatal.

Most importantly, though, it is a constant source of infection. With most medical implants, such as pacemakers and hip replacements, the risk of infection decreases over time. But the driveline collects bugs from the outside world, and the LVAD then introduces them directly into the bloodstream, allowing them to spread quickly. As a result, the driveline must be redressed every day using sterile gloves and gauze. Even so, virtually everyone fitted with an LVAD experiences an infection every 12 to 18 months. Many such infections are serious. Some are deadly.

Joshua Smith, an engineer at the University of Washington, and Pramod Bonde, a heart surgeon at the University of Pittsburgh, hope to change that. Between them they have developed the world's first wireless-powered, driveline-free heart pump. It was formally announced at the American Association for Thoracic Surgery's annual meeting in May.

The Free-Range Resonant Electrical Energy Delivery System, or FREE-D, is powered by induction. Specifically, it exploits a phenomenon called resonant coupling, in which metal coils that resonate at the same electrical frequency can exchange energy particularly efficiently. A transmitter coil, 26cm in diameter, can beam up to 15 watts of power to a receiver coil just 4.3cm across. The transmitter coil can thus be worn in a vest that also holds a battery pack, while the receiver tucks neatly into the patient's chest.

Dr Smith's design can compensate for changes in the angle or position of the coils, allowing a user to move around freely. He envisages beds with built-in transmitter coils, letting people sleep without a vest on, and even entire hospital rooms (or houses) that have coils hidden in the walls and ceilings.

Such improvements cannot come a moment too soon. America's National Heart, Lung and Blood Institute estimates that more than 50,000 Americans a year need a heart transplant or an LVAD. Even so, fewer than 2,500 heart transplants are performed in the country every year and the number of LVAD implants is even smaller. As the supply of donor hearts is unlikely to increase, the need for better LVAD technology is clear.

The wireless heart pump developed by Dr Bonde and Dr Smith will not be available for a few years, however. Technical challenges remain, including integrating a leakproof backup battery into the device and miniaturising the FREE-D's control electronics. And even when those problems are solved, the device will still have to undergo extensive clinical trials before it can be licensed for sale.

If the history of medical research teaches anything, though, it is that conditions which affect wealthy and powerful men like Mr Cheney have little difficulty attracting the money needed to develop and refine new treatments. In just a few years, then, the world could be full of thousands more healthy, active ex-politicians without a heartbeat. Insert your own punchline here.

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Monitor

Just the interesting bits

Security: A new approach to video analysis provides a lightning-quick way to scan hours of footage recorded by security cameras



Don't all rush at once-actually, do

VIDEO cameras are popping up everywhere. On a typical day in a big city you may be filmed by hundreds of closed-circuit television (CCTV) cameras. The combined output of all these systems is far greater than the capacity of security staff to watch all the images. So various tricks are used to automate the process.

Some systems work in "real time" to alert security staff to a potential incident being filmed by a camera. They may be able to read number plates on cars and identify certain faces, for example. Other real-time systems use algorithms to detect suspicious behaviour, such as a group loitering near a door where entry is barred, or to spot items of luggage that seem to have been left unattended.

Then there is the task of searching through a mass of recorded images to see if anything has happened or to find a clip of an incident known to have taken place. Some of the CCTV cameras watching a bank's cash machines now make that job easier by linking video footage to transaction data. Other systems use analytical techniques, much like the real-time ones, to try to identify specific incidents. Error rates, though, can be high. Often there is no alternative to watching the playback manually; and if the footage is speeded up to make that process a little more bearable, things can be missed.

Now an image-processing technology developed by BriefCam, an Israeli company, makes looking through CCTV footage a breeze. In some cases, 24 hours of video from a security camera can be searched in less than a minute. The process works by showing only the bits that move. It essentially creates a summary of all moving events and plays that back as a synopsis superimposed over the static background image. So a camera watching a gate through which only a dozen people pass each day would appear to be a much busier gate, with a dozen people using it in a few seconds. Because the video is not speeded up, each person moves at his or her actual pace. And at any time during the review an operator can switch to see the original video footage.

The process begins as the video is recorded. Using motion-detection algorithms, the BriefCam software separates the background (static or non-moving objects) from the moving objects, tracking and analysing any motion within the frame. It uses this information to create a database of backgrounds, events, objects and activities. When the video summary is needed, all moving events from the period of interest are collected and time-shifted to create the synopsis.

Because the summary displays all moving events, it is less likely than software to miss something. It still relies on the instinct and experience of human operators, but it makes better use of their time by editing out all the boring bits.

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Japan's winds of change

Energy: Redesigned wind turbines can wring more power out of mountain winds, which are otherwise difficult to exploit

ONE reason for Japan's reliance on nuclear power-with all its attendant difficulties of building reactors safely in an earthquake zone-is its lack of indigenous energy sources. Yet it does have one that seems under-exploited, namely the wind. According to a report published in 2009 by the Global Wind Energy Council, Japan, which generates 8.7% of the world's economic output, has just 1.3% of its windpower capacity. The world's third-largest economy is 13th in global windpower.

According to Chuichi Arakawa, a mechanical engineer at the University of Tokyo, that is because Japan has too much of the wrong sort of wind. The typhoons which regularly strike the place are simply too powerful. (In 2003, for example, such a storm crippled six turbines on Miyakojima, near Okinawa.) And the ordinary winds are less useful than they might be because Japan is so mountainous. For engineering reasons turbines must be mounted on vertical poles, regardless of the slope of the landscape. But on a hillside that means the wind (which tends to follow the ground when it is close to the surface) hits the blades of the turbines at an angle, instead of face on. That makes power generation less efficient.

Help, though, is on the way. Engineers at Fuji Heavy Industries (FHI), a large manufacturing company, have come up with a turbine that they think can withstand the sort of battering that brought down those on Miyakojima, and also turn the irregular mountain winds to advantage. The crucial differences between FHI's new turbine and a traditional one are in the location and setting of the blades. In a traditional turbine the blades are in front of both the pole and the nacelle (the structure that houses the generator). In addition, the plane of the blades is parallel to the pole. This is called an upwind design.

By contrast, FHI has opted for a downwind design, which puts the blades behind both nacelle and pole. This allows the rotor plane to be tilted so that it faces directly into winds blowing up the hill without snagging on the pole. According to Shigeo Yoshida, who is in charge of research for the project, that makes the arrangement 5-8% more efficient in such circumstances than an upwind turbine would be.

As a bonus, the downwind design is less temperamental in high winds. That is because the blades, being behind the pole and at an angle to it, can be given more freedom to yaw about than they would have in an upwind turbine. This puts less strain on them than if they were fixed. So far 25 downwind turbines have been constructed in Japan, and dozens more are

in the pipeline. Windpower will remain an unpredictable power source, of course. But as Japan has recently been reminded, a bit more diversity of supply would not hurt.

Monitor

Pipe dreams

Computing: To plug leaks from the water supply, you first have to find them. Funnily enough, that can be done using software



ANY industry that mislays 25-30% of its product in the process of delivering it might reasonably be thought to have a problem. Yet that, according to the World Bank, is the case for the world's water companies. Although water is cheap, it is not free. A report published by the bank in 2006 reckoned that leaks were then costing $14 billion a year. But in order to plug a leak you have to be able to find it. Water mains are hard to inspect, particularly if they are underground. Many are old and thus decrepit. And outright theft is not unheard of, as the poor seek to fill their drinking vessels and the rich their swimming pools. An effective way of detecting leaks, both accidental and deliberate, would therefore be welcome.

TaKaDu, a firm based near Tel Aviv, thinks it has one. The problem, in the view of its founder, Amir Peleg, is not a lack of data *per se*, but a lack of analysis. If anything, water companies-at least, those in the rich world-have too much information. A typical firm's network may have hundreds, or even thousands, of sensors. The actual difficulty faced by water companies, Dr Peleg believes, is interpreting the signals those sensors are sending. It is impossible for people to handle all the incoming signals, and surprisingly hard for a computer, too.

TaKaDu's engineers have therefore developed a monitoring system called a statistical anomaly detection engine that is intended to identify clues in the data which might otherwise be missed. It applies a range of statistical tests (linear-regression analysis is one of the more familiar) to the data stream, and thus works out when the incoming signals are deviating significantly from normal behaviour. Sometimes such deviations are caused by faulty meters. Sometimes they are caused by leaks. Either way, that is valuable knowledge.

To know what is unusual you have, of course, to know what is normal. Even a 1% change in flow rate can sometimes be significant, if it is persistent, but that is not always the case. Existing leak-detection systems therefore have thresholds built into them, to avoid false alarms. The price of this is that small leaks may go undetected and thus unrepaired, which can lead to larger leaks later. The detection engine attempts to work out what is important by using a process of

continuous modelling to define normality. This identifies both obvious patterns-such as daily, weekly and annual flow-rates-and subtle ones, such as correlations between the behaviours of widely separated parts of the system that are brought about by things like similarities in network layout or in the behaviour of local customers.

If the system does detect an anomaly, it asks itself if there is likely to be an innocent explanation (a change in the weather, for example, or a public holiday). If not, it attempts to narrow down exactly where the putative leak is and alerts a human operator to go and have a look.

And it seems to work. Early last year Thames Water, which supplies London, tested the system on 3,000km (1,860 miles) of mains. The detection engine proved able to identify minor leaks up to nine days earlier than Thames's existing systems could manage, and even picked up major bursts as much as 31/2 hours more quickly. In light of that success, Thames has now extended the detection engine's reach over the whole 10,400km length of its urban mains network.

Others are following suit. TaKaDu's detection engine is now looking after the water supply in a dozen places in Australia, Europe and Latin America, as well as Israel. One of its early victories was in Jerusalem, where it found that a fire hydrant was being used to fill a private swimming pool-thus pulling the plug, as it were, on a very surprised water thief.

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Beating cheating

Computing: Automated analysis of test-takers' answers to standardised tests is revealing bad behaviour by students, teachers and invigilators

TO SAY that cheats never prosper is to elevate hope over experience. Modern technology, in the form of miniature cameras, smartphones and the internet, means stealing and sharing answers has never been easier. Indeed, the problem has got so bad that on March 1st the Japanese government asked universities to ban mobile phones from the rooms they use to conduct their entrance exams. Nor are students the only cheats. Teachers, whose salaries often depend on the success of their charges, are not above dropping the odd hint about what is the right answer before or during a test-or even correcting test papers after the event. And the invigilators who police the actual exam are not always immune to bribery, either. At the same time, technology can detect cheats more easily than before.

Software developed by exam-setting firms like Prometric, of Baltimore, Maryland, and Caveon, of Midvale, Utah, detects cheating by calculating the probability of particular patterns of answers being honest. A correct answer is a correct answer, of course, but unless a candidate answers all questions correctly the pattern of right and wrong answers can point to collaboration. If two candidates' patterns of answers are similar or identical, warning flags go up. If more than two, hanky-panky is a racing certainty.

In tests where the candidate is allowed to change his mind about an answer, the pattern of changes also provides information. Several candidates making the same change is suspicious. So is a case where all changes are from wrong to right.

Sudden improvements in scores by an individual candidate, compared with previous attempts, also raise an electronic eyebrow. Crossing an international border to take a test is suspicious, too, and doubly so if it involves moving from a place generally reckoned clean to one generally reckoned corrupt.

A company called Kryterion scrutinises matters even more closely. Kryterion administers its tests online, and the invigilators sit at its headquarters in Phoenix, Arizona, watching test-takers around the world through webcams and never meeting them in person. The opportunities for envelopes stuffed with banknotes to change hands are thus minimised. Remote computers are "locked down" with security software to prevent unauthorised windows from being opened. Invigilators warn or disqualify test-takers whose eyes or hands wander in suspicious ways. The software also alerts them if difficult questions are being answered suspiciously quickly, or if two test-takers' answers match too closely for comfort.

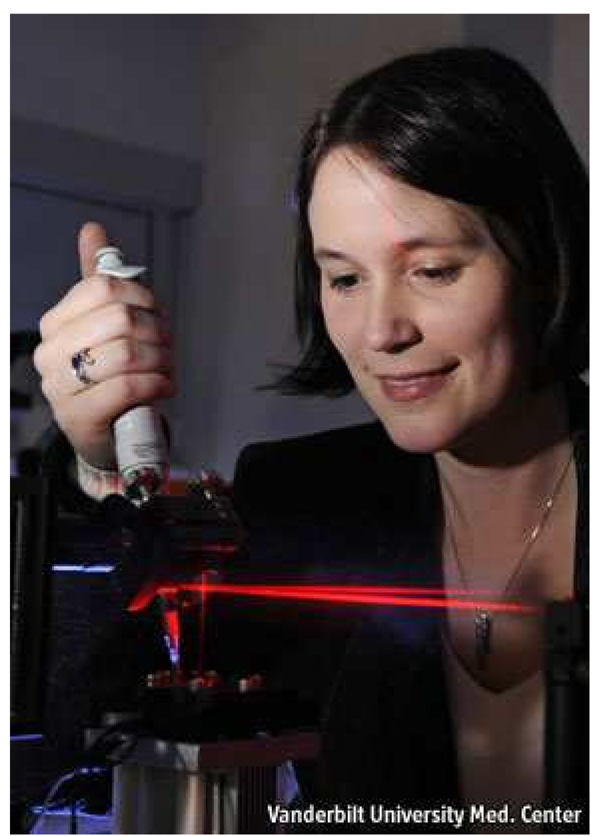
Nor does the scrutiny stop when the test is over. Caveon and Prometric operate "web patrol" software that hunts day and night for illicitly revealed test information. And Prometric, for one, has an additional security measure. It inserts a unique question in some individual exam papers. If that question later appears online, that indicates a leak.

Prometric now detects so much cheating that, every week, it investigates about 20 of its 5,000 test centres around the world. Of those, around five a week have to be shut down permanently. Numerous administrators and invigilators at even those places that survive investigation are fired for lax security or accepting bribes, and undisclosed numbers of test-takers are charged with cheating. It is a far cry from the days when an answer scribbled in biro on the palm of a sweaty hand was all that stood between a candidate's success and failure.

Monitor

New light on proteins

Biomedicine: Using lasers to study proteins on the outer membranes of cells offers a new way to accelerate drug research and improve treatment



Very illuminating

AT ANY given time there are about 7,000 different types of protein molecule in an average cell in the human body. Almost a third of these are embedded in the cell's outer membrane. Some control the movement of substances in and out of the cell; others transmit signals from the exterior to the cell's interior. The importance of these roles, and the exposed and accessible nature of membrane proteins, mean that such proteins are frequently the targets of drugs. Indeed, around half of the drugs currently on the market work by interacting with proteins in the cell membrane.

Membrane proteins are, nevertheless, difficult to study. Removing them from their normal environment deprives them of the company of other substances essential for their function. And seeing what is going on often involves chopping them up or modifying them in some way, such as by attaching fluorescent labels, in order to analyse their activity. Such modifications inevitably affect their function. Now, however, Darryl Bornhop at Vanderbilt University, Nashville, and his

colleagues at the Scripps Research Institute in La Jolla, California, have come up with a simple, low-cost way of studying membrane proteins unmodified and *in situ* using a laser. They recently described their technique in *Nature Biotechnology*.

Their process is called back-scattering interferometry (BSI). A sample is deposited into a microscopic liquid-filled chamber made of glass and is then illuminated by a laser. Light reflected from it forms an interference pattern that can be captured by a camera. The details of this pattern are exquisitely sensitive to what the molecules in the membrane are doing.

In particular, the pattern changes when the proteins creating it interact with other molecules-such as hormones, if they are signalling proteins, or their chemical payloads, if they are transporters. This is because such interactions change the speed at which light travels through the proteins which, in turn, changes the interference pattern. Using a series of algorithms written by the team, a computer can correlate these changes in the interference pattern with the binding of particular molecules to particular proteins.

To test their new technique Dr Bornhop and his colleagues made synthetic membranes containing a small protein called GM1. This is a signalling molecule that is also, unfortunately for victims, the target of cholera toxin. When the team mixed their new membranes with cholera toxin, the interference pattern behaved precisely as predicted. They then carried out similar tests using natural membranes and proteins. These included proteins associated with breast cancer, inflammation and pain. They looked, too, at the receptor for GABA, a brain chemical known to be involved in relaxation and the regulation of anxiety, among other things. Again, BSI provided measurements that agreed with those obtained in other, more laborious ways.

The simplicity of BSI means it should find application in both research and treatment. On the research side, it will help with the analysis of potential drugs before they are deployed in costly clinical trials. The technique could also be used to look for side effects, which are sometimes caused by drugs binding to proteins in unexpected ways. On the treatment side, it could be used diagnostically to study the binding of antibodies and thus determine if someone has a particular infection, and to help explain why different patients suffering from the same disease sometimes respond differently to the same treatment. That may be because the drugs involved are not binding to the same degree to the membrane proteins in different individuals' cells. BSI could then be used to determine the optimum dose for each patient.

To exploit his invention, Dr Bornhop has co-founded a company called Molecular Sensing, which is based near San Francisco. He hopes to provide the first BSI machines to research laboratories later this year. His work is a reminder that the laser-which celebrated its 50th birthday last year and is already used in medicine for various kinds of surgery-still has plenty of tricks up its sleeve.

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Water good idea

Biomimicry: An improved way to harvest drinking water from fog in remote areas takes its inspiration from an African beetle



IN THE dry desert on the west coast of Namibia, where the annual average rainfall is a meagre 40mm, the Namib beetle (*Stenocara gracilipes*) has evolved a unique mechanism to drink. It collects moisture from the early morning fog that is produced when ocean breezes from the Atlantic collide with the hot desert air. Drawing inspiration from this fog-harvesting trick, Shreerang Chhatre, a graduate student at the Massachusetts Institute of Technology, and his colleagues, have developed a simple and inexpensive way to produce drinking water.

The Namibian mist rapidly dissipates once the sun rises, so the beetle has just a brief opportunity to collect water. The insect typically finds a ridge of sand and faces the breeze, tilting its lower body upwards with its specially adapted wings outstretched. The wings have bumps made of a hydrophilic substance that attracts minute water droplets. As they accumulate, the droplets grow larger until their weight causes them to run off into troughs in the beetle's wings. These troughs are covered with a waxy water-repelling substance which has the effect of rolling the droplets down the beetle's inclined body and into its mouth.

Fog harvesting is not a new idea. FogQuest, a Canadian charity, has been installing devices using a metallic mesh to catch water droplets in developing countries for more than a decade. But Mr Chhatre says he and his colleagues have increased the efficiency of water collection using a variety of surface coatings.

Water droplets in fog are very small, typically between 1 to 50 microns (one-millionth of a metre) across. Hydrophilic surfaces gather and hold droplets with electrostatic attraction, which prevents them being picked up and carried away in the wind. As more droplets are attracted, they spread out and eventually join together and run off the surface-as they do on a pane of glass. Hydrophobic coatings, like Teflon, are then needed to repel the water and stream it as quickly as possible to a reservoir so it does not evaporate.

Mr Chhatre, a chemist, studied the so-called "wettability" of various coatings and found mathematical formulae which could determine the ideal combination of coatings for the different sizes of fog particles found in any particular region. The surface texture of the coatings also turned out to be important.

The ideal locations for fog harvesting are mountainous and desert regions where fog is present but water sources are far away. Mr Chhatre is setting up a pilot project in South Africa and hopes to organise another in India. Using a coated aluminium mesh, he conservatively estimates that it is possible to collect about one litre of water daily from a mesh of one square metre. Under ideal conditions, he says, that could increase tenfold.

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Rig on a roll

Transport: Computer modelling is being used to improve the airflow around big trucks and reduce their fuel consumption

THE monster 18-wheel trucks that hurtle along America's highways carry most of the nation's freight. There are reckoned to be some 1.3m of these "semi-trailers", as the combination of a tractor unit and trailer are known. Such vehicles are called articulated lorries in Britain, although they tend to be a bit puny compared with American rigs that can weigh 32,000kg (70,000lbs) or more. Not surprisingly the big semi-trailers take skill to handle-and they consume a lot of diesel. But a new development could reduce fuel consumption and give truckers one less thing to worry about when on the open road.

The work involves fitting wind-deflecting devices under the trailer of a semi to make the rig more aerodynamically efficient. The devices direct oncoming air around the trailer in such a way that it increases pressure in the area of the slipstream immediately behind the vehicle. Ordinarily, this is a low-pressure area which has the effect of sucking the truck backwards, something that adds to the rig's fuel consumption.

The low-pressure area in the slipstream of a moving object is exploited in some sports such as cycle racing, speed skating and motor racing. In a technique known as "drafting", a competitor gets close behind the person or vehicle in front. The low-pressure area reduces wind resistance and hence the amount of drag, which means less energy is needed to maintain the same speed as the leader. Some car and lorry drivers try to exploit this aerodynamic effect by tailgating big trucks to reduce their own fuel consumption. But it is exceedingly dangerous.

The wind deflectors for the semis were developed by BMI, a small company based in South Carolina. They were inspired by the aerospace industry, says Mike Henderson, its chief executive. Before he started the firm, Mr Henderson ran a Boeing research unit that investigated aircraft aerodynamics using elaborate computer models. He has now set up a new company called SmartTruck to market the technology as UnderTray.

The UnderTray looks simple enough: plastic and metal structures which direct oncoming air towards the rear in such a way as to raise the air pressure. But the aerodynamics involved are extremely complex and required a supercomputer to crack. For this, the company won a grant from America's Department of Energy to run simulations on Jaguar, a Cray XT-5 supercomputer at the Oak Ridge National Laboratory in Tennessee. Jaguar is capable of 2.3 quadrillion mathematical operations every second (which is about 100,000 times faster than a typical laptop). Mr Henderson reckons it shaved about two years from the time it would otherwise have taken to turn the concept into a final design.

The company says UnderTray can improve fuel efficiency in a semi-trailer by as much as 12%. The Department of Energy estimates that if all the semis in America had such devices installed it would produce fuel savings of 1.5 billion gallons of diesel a year, worth about $6 billion at the current diesel price of $4 a gallon. A typical semi-trailer travels about 240,000km (150,000 miles) a year, and even at $3 a gallon for diesel BMI estimates that its system would pay for itself in 12 to 18 months. So its technology should be an appealing proposition for truckers-and it would thwart tailgaters, too.

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Can Twitter predict the future?

Internet forecasting: Businesses are mining online messages to unearth consumers' moods-and even make market predictions



ONE day in 2008 an anonymous Twitter user posted a message: "I am certainly not bored. way busy! feel great!" That is all well and good, one might think, but utterly uninteresting to anyone besides the author and, perhaps, a few friends. Not so, according to Johan Bollen, of Indiana University Bloomington, who collected the tweet, along with plenty of others sent that day. All were rated for emotional content. Many proved similarly chirpy, scoring high on confidence, energy and happiness. Indeed, Dr Bollen reckons, on the day the tweet was posted, America's collective mood perked up a notch. When he and his team examined all the data for the autumn and winter of 2008, they found that Twitter users' collective mood swings coincided with national events. Happiness shot up around Thanksgiving, for example.

The idea of tapping web-based data to build a real-time measure of users' emotions and preferences is not new. Nor is that of using the results to predict their behaviour. Interest in internet forecasting was sparked by a paper published in 2009 by Hal Varian, Google's chief economist. He found that the peaks and troughs in the volume of Google searches for certain products, such as cars and holidays, preceded fluctuations in sales of those products. Other researchers have shown that searches for job-related terms are a good predictor of unemployment rates and that mentions of political candidates on Twitter correlate with electoral outcomes.

Dr Bollen spotted another curious correlation. When he compared trends in the national mood with movements of the Dow Jones Industrial Average (DJIA) he noticed that changes in one of the mood measure's seven components, anxiety, predicted swings in the share-price index. Spikes in anxiety levels were followed, around three days later, by dips in the price of shares. Why this happens remains unclear, but one possible explanation is that the falling prices were caused by traders' tendency to exit risky positions when feeling strung up.

Dr Bollen's algorithm, which he described in a paper published in February in the *Journal of Computational Science*, has been licensed to Derwent Capital Markets, a hedge fund based in London. Derwent will use it to help guide the investments made with a pound25m ($41m) fund that the firm hopes to launch in the next few months. Other funds are rumoured to be using similar tricks already. WiseWindow, a marketing firm based in Irvine, California, uses social-media activity to forecast demand for products. Its clients include Paramount Pictures and Belkin, a consumer-electronics firm.

All such initiatives face a problem, though. Humans excel at extracting meaning and sentiment from even the tiniest snippets of text, a task that stumps machines. To a computer, a tweet that reads "Feeling joyful after my trip to the dentist. Yeah, really" says that the author has been to the dentist and is now happy. Researchers have recently made strides in teaching machines to recognise such sarcasm, as well as double meanings or cultural references. In February Watson, a supercomputer devised by IBM, trounced two human champions at "Jeopardy!", an American quiz show renowned for the way its clues are laden with ambiguity, irony, riddles and puns. But, for the most part, processing natural language remains a challenge.

Then there is the question of how the new methods compare with existing approaches. Duncan Watts, an internet researcher who heads one of Yahoo!'s research labs in New York, likes to cite the example of weather forecasting in Santa Fe, New Mexico. A forecast that predicts sunshine every day would be correct 80% of the time, he quips. It would also be worthless, since locals already know that the town gets over 300 days of sun every year. In other words, to be useful a forecasting technique must add something to what is already known.

It is hard to know whether that is happening in finance, since hedge funds tend to keep mum about how successful (or not) particular forecasting algorithms are. So Dr Watts looked at areas, like films' box-office receipts, music and video-game sales, where some public data are available. How a film does at the box office, for instance, can be predicted based on bits of previously aggregated data: its production budget, the number of screens it opens on and wagers from HSX, a website which lets people place bets on movie revenues. Adding search data to the model, Dr Watts found, produced no improvement.

Search-related methods did, however, fare better when forecasting video-game sales, where there are only two types of publicly available information to hand: ratings from reviews and, if the game is a sequel, sales figures for its predecessor. Forecasting models which added search data into the mix were much more accurate than those that did not. The same was true of music, another area where pre-packaged information is scarce.

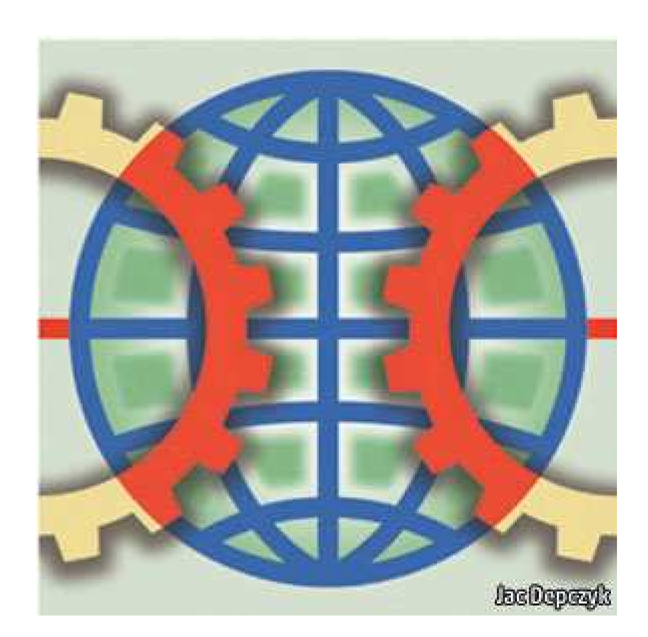
Dr Watts thinks that simple search-volume forecasts will help spot consumer trends of this sort with increased precision. But the improvements they bring will be incremental. Sophisticated methods based on natural-language analysis of tweets, blogs, or Facebook pages, by contrast, hold greater disruptive potential. As users of social media grow accustomed to sharing highly personal information, apparently unfazed by market-research outfits like WiseWindow watching their every step, the feelings and intentions of hundreds of millions of people are there for data-hungry computers to see. And thanks to the likes of Dr Bollen, they are becoming increasingly legible.

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Difference engine

Nikola Tesla's revenge

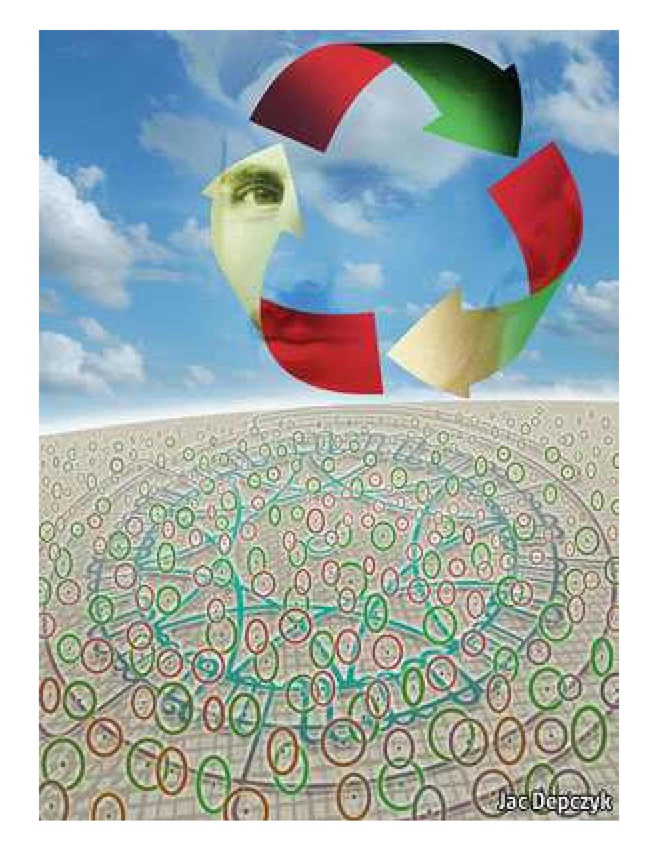
Transport: The car industry's effort to reduce its dependence on rare-earth elements has prompted a revival in the fortunes of an old-fashioned sort of electric motor



ONCE again, worrywarts are wringing their hands over possible shortages of so-called "critical materials" crucial for high-tech industries. In America the Department of Energy is fretting about materials used to manufacture wind turbines, electric vehicles, solar cells and energy-efficient lighting. The substances in question include a bunch of rare-earth metals and a few other elements which-used a pinch here, a pinch there-enhance the way many industrial materials function.

It is not as though the rare-earth elements-scandium, yttrium and lanthanum plus the 14 so-called lanthanides-are all that rare. Some are as abundant as nickel, copper or zinc. Even the two rarest (thulium and lutetium) are more abundant in the Earth's crust than gold or platinum.

A decade ago America was the world's largest producer of rare-earth metals. But its huge open-cast mine at Mountain Pass, California, closed in 2002-a victim mainly of China's drastically lower labour costs. Today, China produces 95% of the world's supply of rare-earth metals, and has started limiting exports to keep the country's own high-tech industries supplied.



The rare-earth element that other industrial countries worry about most is neodymium. It is the key ingredient of super-strong permanent magnets. Over the past year the price of neodymium has quadrupled as electric motors that use permanent magnets instead of electromagnetic windings have gained even wider acceptance. Cheaper, smaller and more powerful, permanent-magnet motors and generators have made modern wind turbines and electric vehicles viable.

That said, not all makers of electric cars have rushed to embrace permanent-magnet motors. The Tesla Roadster, an electric sports car based on a Lotus Elise, uses no rare-earth metals whatsoever. Nor does the Mini-E, an electric version of BMW's reinvention of the iconic 1960s car. Meanwhile, the company that pioneered much of today's electric-vehicle technology, AC Propulsion of San Dimas, California, has steered clear of permanent-magnet motors. Clearly, a number of manufacturers think the risk of relying on a single source of rare-earth metals is too high.

The latest carmaker to seek a rare-earth alternative is Toyota. The world's largest carmaker is reported to be developing a neodymium-free electric motor for its expanding range of hybrid cars. Following in AC Propulsion's tyre tracks, Toyota is believed to have based its new design on that electromotive industrial mainstay, the cheap and rugged alternating-current (AC) induction motor patented by Nikola Tesla, a Serbian-American inventor, back in 1888.

Think of it as a rotating transformer, with the primary windings residing in a stationary casing (stator) and the secondary conductors attached to an inner shaft (rotor). The stator surrounds-but does not touch-the rotor, which is free to rotate on its axis. An alternating current applied to the stator's windings creates a rotating magnetic field, while simultaneously inducing a current in the separate conductors surrounding the rotor. With an alternating current now circulating within it, the rotor creates a rotating magnetic field of its own, which proceeds to chase the stator's rotating field-causing the rotor to spin in the process and generate torque.

Modern AC induction motors usually have three (or more) sets of stator windings, which smooths things out and allows more torque to be generated. Such machines are known as "asynchronous" motors, because the rotor's magnetic field never catches up with the stator's field. That distinguishes them from "synchronous" motors that use a permanent magnet in their rotors instead of a set of conductors. In a synchronous motor, the stator's rotating magnetic field imposes an electromagnetic torque directly on the fixed magnetic field of the rotor, causing the latter assembly to spin on its axis in sync with the stator field. Hence the name.

In the past the main problem with asynchronous induction motors was the difficulty of varying their speed. That is no longer an issue, thanks to modern semiconductor controls. Meanwhile, the induction motor's big advantage-apart from its simplicity and ruggedness-has always been its ability to tolerate a wide range of temperatures. Providing adequate cooling for the Toyota Prius's permanent-magnet motor adds significantly to the vehicle's weight. An induction motor, by contrast, can be cooled passively-and thereby dispense with the hefty radiator, cooling fan, water pump and associated plumbing.

Who needs a gearbox?

Better still, by being able to tolerate temperatures that cause permanent magnets to break down, an induction motor can be pushed (albeit briefly) to far higher levels of performance-for, say, accelerating while overtaking or climbing a steep hill. Hybrid vehicles like the Toyota Prius or the Chevrolet Volt have to rely on their petrol engines and gearboxes for extra zip. By contrast, the Tesla Roadster uses just one gear-such is the flexibility of its three-phase induction motor.

In moving to a pure induction design, Toyota will be taking a page out of Tesla's book, in both senses of the name. Weighing in at 115lb (52kg), the Roadster's tiny three-phase induction motor is no bigger than a watermelon. Yet it packs a hefty 288 horsepower (215 kilowatt) punch. More impressively, the motor's 295lb-ft (400 newton-metres) of torque is available from rest to nearly 6,000 revolutions per minute, which eliminates the need for a conventional gearbox. The result is a motor that is light, compact and remarkably efficient.

Overall, the Tesla Roadster achieves a battery-to-wheels efficiency of 88%. That is three times better than a conventional car. With its vast engineering resources, Toyota could well do even better. And somewhere, Nikola Tesla must be smiling.

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Carbon footprints

Following the footprints

Environment: Carbon-footprint labels, which indicate a product's environmental impact, are quietly spreading. Consumers may not have noticed them yet, but there is a lot going on behind the scenes



DO YOU look for carbon-footprint labels on goods when shopping? If you do, you are in a small minority. The practice of adding labels to foods and other products, showing the quantity (in grams) of carbon-dioxide emissions associated with making and transporting them, began in 2007 when the world's first such labels were applied to a handful of products sold in Britain. The idea was that carbon labels would let shoppers identify products with the smallest carbon footprints, just as

other labels already indicate dolphin-friendly tuna, organic milk or Fairtrade coffee. Producers would compete to reduce the carbon footprints of their products, and consumers would be able to tell whether, for example, locally made goods really were greener than imported ones.

Carbon labels have yet to become as widely recognised by consumers as other eco-labels, however. A survey carried out in 2010 by Which?, a British consumer group, found that just a fifth of British shoppers recognised the carbon footprint label, compared with recognition rates of 82% for Fairtrade and 54% for organic labelling. This is understandable, because carbon labelling is a much more recent development-organic labelling dates back to the 1970s, and Fairtrade to the late 1980s-and the right ways to do it are still being worked out. Adding a carbon label to a product is a complex and often costly process that involves tracing its ingredients back up their respective supply chains and through their manufacturing processes, to work out their associated emissions. According to 3M, an American industrial giant that makes over 55,000 different products, this can cost $30,000 for a single product. To further confuse matters, different carbon footprinting and labelling standards have emerged in different countries, preventing direct comparisons between the various types of label.

Even so, proponents of carbon labels now see encouraging signs of progress. In Britain, a pioneer in carbon labelling, nine out of ten households bought products with carbon labels last year, albeit mostly unwittingly, and total sales of such products exceeded pound2 billion ($3.1 billion). This exceeded the total sales of organic products (pound1.5 billion) or Fairtrade products (pound800m) and is largely due to the addition by Tesco, Britain's biggest retailer, of carbon labels to more than 100 of its own-brand products, including pasta, milk, orange juice and toilet paper. (Tesco said in 2007 that it would put carbon labels on every one of the 70,000 products it sells; so far it has managed to label 500 products.)

"In the last 12 months, carbon footprinting has become common currency," says Harry Morrison of the Carbon Trust, a consultancy funded by the British government which has footprinted more than 5,000 products worldwide, from building materials to pharmaceuticals. Similar carbon-labelling initiatives have been launched in many countries, measurement techniques are gradually being formalised and a global standard is in the works. Although consumers have yet to embrace the idea, the quiet spread of carbon labels is being driven by companies, which have come to see the value of determining the carbon footprints of their products.

Footprinting's first steps

The earliest carbon-footprint labels, which appeared in 2007, indicated the promise of the idea but also highlighted the complexity of making it work. Among the first products to have carbon labels applied were the cheese-and-onion potato crisps made by Walkers, a brand owned by PepsiCo, which were found by the Carbon Trust to have a footprint of 75 grams per packet. This figure, printed on the packet with the Carbon Trust's "black footprint" logo, included the emissions associated with growing the potatoes, turning them into crisps, packaging them, delivering them to shops and disposing of the packaging after use. National averages were used to calculate the transport and disposal emissions.

Carbon labels need not just measure carbon-dioxide emissions. Where appropriate, emissions of other greenhouse gases, such as nitrous-oxide from soils and methane emissions from animals, are also taken into account. These are turned into "carbon-dioxide equivalent" emissions using suitable conversion factors: 1g of methane is commonly taken to have the same global-warming potential as 21g of carbon dioxide, for example.

The process of calculating the carbon footprint for Walkers crisps revealed an unexpected opportunity to save energy. It turned out that because Walkers was buying its potatoes by gross weight, farmers were keeping their potatoes in humidified sheds to increase the water content. Walkers then had to fry the sliced potatoes for longer to drive out the extra moisture. By switching to buying potatoes by dry weight, Walkers could reduce frying time by 10% and farmers could avoid the cost of humidification. Both measures saved money and energy and reduced the carbon footprint of the final product.

The value of carbon footprinting and labelling lies in identifying these sorts of savings, rather than informing consumers or making companies look green. According to a report issued in 2009 by the Tyndall Centre for Climate Change Research at the University of Manchester, in England, "the main benefits of carbon labelling are likely to be incurred not via communication of emissions values to consumers, but upstream via manufacturers looking for additional ways to reduce emissions." It is not so much the label itself that matters, in other words, but the process that must be gone through to create it. Walkers has reduced the footprint of its crisps by 7% since the introduction of its first carbon labels. Indeed, to use the Carbon Trust's label, companies must do more than just measure the footprint of a product: they must commit themselves to reducing it.

Another of the early products to receive a carbon label was a shampoo sold by Boots, a British pharmacy chain. Shampoo is an example of a product where the footprint associated with using the product-the so-called "use phase" emissions-can be comparable to, or even greater than, the manufacturing footprint. Initially, says Mr Morrison, the Carbon Trust's carbon labels did not include use-phase emissions, because these can vary enormously depending on consumer behaviour. The emissions associated with a bottle of shampoo depend on how long you spend in the shower, how hot the water is and what sort of boiler you have.



For many products, in short, the manufacturing footprint does not give the full picture. This is particularly true for electrical goods that are designed to use less energy. Improving energy-efficiency often involves more elaborate manufacturing processes that increase the product's manufacturing footprint. But in use, such products use less energy, so their overall footprint, considered over their entire life cycle, is smaller. A good example is flat-screen LCD televisions compared with old-style cathode-ray-tube models. "The energy consumption in use has got much better, but the manufacturing process has got more complicated," says Mr Morrison. As a result, the Carbon Trust's carbon labels now include use-phase emissions. These are estimated by making statistical assumptions about consumer behaviour.

For some goods, customer behaviour can make a dramatic difference to the use-phase emissions. A life cycle analysis carried out for Levi Strauss, an American maker of casual wear, found that 57% of the carbon footprint of its 501 jeans was due to the emissions associated with washing them-assuming, that is, that the jeans were washed in warm water and machine-dried. Washing them in cold water and drying them on a line, however, reduces the use-phase emissions by 90%. Adding this sort of information to product labels can encourage buyers to minimise the use-phase emissions-but only if they actually read the label and act on its advice.

Given such wide variations, so-called "product category" rules are needed to ensure comparability between carbon labels on similar products. Those product-category rules, in turn, must be harmonised between countries to ensure compatibility between carbon-labelling schemes, which are growing in number and diversity.

In Japan the Ministry of Economy, Trade and Industry launched a calculation and labelling programme in 2008 which has signed up more than 300 retailers and manufacturers. As part of this scheme METI has established product-category rules for 53 products. South Korea's environment ministry has introduced a "CooL label", now sported by over 220 products, including furniture, rice and consumer electronics. In Thailand the government is piloting labels on 65 products from T-shirts to ceramic tiles, and is developing product-category rules for rice, textiles and chicken. Other labels have been launched in America, Canada, Switzerland and Sweden.

But the country that is now making the running is France. Casino, a French retail chain, introduced carbon labels on 100 of its own-brand products in 2008 and has since added labels to another 400 items. Its Carbon Index labels show the carbon footprint per 100g of final product (use-phase emissions are not included). E. Leclerc, another French retailer, has pioneered two novel twists on carbon labelling in a handful of its stores. It has fixed labels to store shelves showing the carbon emissions per kilogram of produce next to the usual price tags showing cost per kilogram. And by roughly estimating the carbon footprints of 20,000 of its products (by dividing them into 600 generic categories) it can produce a total footprint for an entire trolley of goods that appears on the store receipt. Signs show consumers how their trolley's footprint compares with the average.

The French exception

These initiatives by French retailers are being backed by government action. A year-long experiment will begin in July, involving 168 firms in a range of industries, to apply carbon labels to products including clothing, furniture and cleaning products. An accompanying campaign will try to raise awareness of carbon labels among consumers. This is a prelude to the planned introduction of compulsory carbon-labelling rules, possibly as soon as 2012, which will apply to imported

goods as well as those made in France. The new rules, devised by AFNOR, the French Standards Agency, require labels to show more than just the carbon footprint. Depending on the product category, they must also include other environmental data, such as the product's water footprint and impact on biodiversity. Product-category rules have already been drawn up by AFNOR and the French environment ministry for shoes, wood, furniture, shampoo and fabric chairs. The project is the result of Grenelle 2, a law passed in 2010 which marks the first time a government has tried to make environmental labelling mandatory.

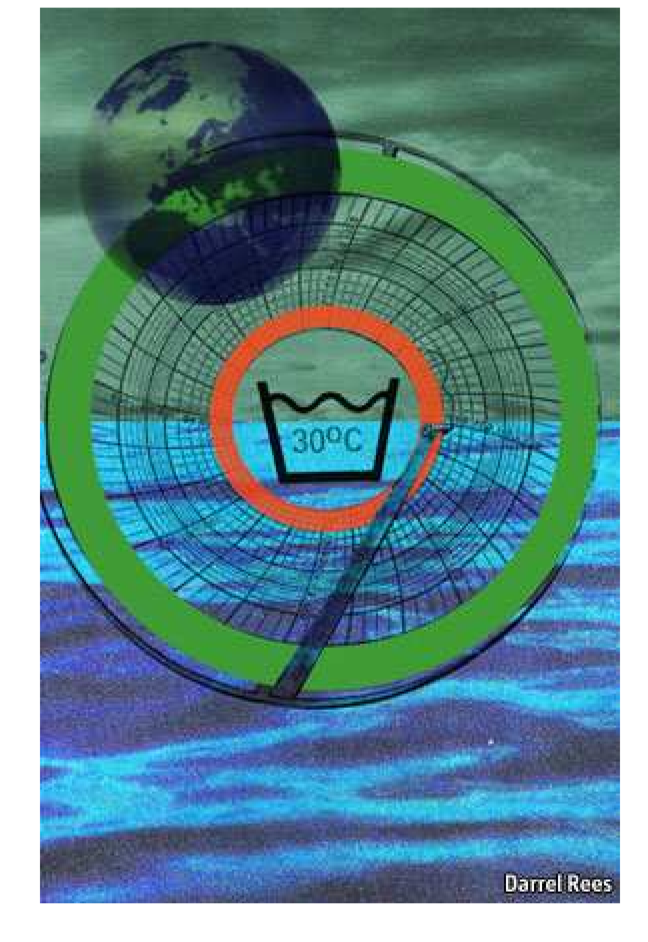
Other European countries will be watching the French experiment closely, not least because their own exporters may soon have to adhere to the French rules. Inevitably this has led to calls for a European standard for carbon labelling. Last year the European Commission asked Ernst & Young, a consultancy, to evaluate and compare the various footprinting schemes in use in Europe. It found wide variation between them. "We are definitely at the early stage," says Eric Mugnier, E&Y's director of environment and sustainability. Not all carbon-labelling schemes are verified by independent third parties, for example, or include use-phase emissions. The European Commission's Institute for Environment and Sustainability is about to launch an analysis of footprinting methods.

Meanwhile, efforts to refine and harmonise carbon footprinting and labelling at a global level are advancing. Britain's standard, called PAS 2050, which was published in 2008, is highly regarded and has influenced standard-setting elsewhere. In France, Casino is adjusting its footprinting methodology to bring it into line with PAS 2050 by including use-phase emissions, for example. The British standard has also helped shape the two global product-footprinting standards that are now in the works: ISO 14067, being drawn up by the International Organisation for Standardisation, based in Geneva, and the GHG Protocol, a project backed by two environmental lobby groups, the World Resources Institute and the World Business Council for Sustainable Development.

The ISO standard is expected to be finalised in 2012, and the GHG Protocol standards will be released in September. Co-operation between the two bodies should ensure that their standards are highly compatible. "The marketplace is asking for one standard-not different ways in different countries. Otherwise, it becomes a trade barrier," says Pankaj Bhatia, director of the GHG Protocol. There will still be details to fill in. But the movement towards a global set of standards is clear.

That will be reassuring for companies worried about multiple sets of standards and a growing carbon-counting bureaucracy. The difficult part remains, however: working with their networks of suppliers to determine, and then reduce, the carbon footprints of their products. This is a tricky area, says Mr Morrison, because suppliers may worry that revealing information about their processes for carbon-measurement purposes "becomes a back door to a debate about price". Yet engaging suppliers is vital, because many firms have direct control over only a small part of their products' footprints. Gold'n Plump Poultry, a large American chicken producer, found that its own operations accounted for just 22% of the footprint of each chicken; 50% of the footprint came from the production of corn- and soya-based chicken feed.

For some firms, such as food companies and retailers, the lion's share of their emissions takes the form of these "indirect" emissions produced elsewhere. Tesco, for example, reckons its supply chain produces ten times the emissions of its direct operations (heating and lighting stores and offices, and so forth), and that consumer emissions may be ten times as big again. Similarly, Walmart, the world's largest retailer, estimates that 90% of its emissions emanate from its supply chain of over 120,000 companies.



Only by working closely with suppliers, and encouraging them to collaborate and pool expertise, will it be possible to streamline the footprinting process and label hundreds or thousands of products, says David North, director of corporate affairs at Tesco. His firm is working with Unilever, Procter & Gamble, PepsiCo and Coca-Cola, under the auspices of the Consumer Goods Forum, an industry body, to make carbon measurement easier for suppliers. "The process has to be simplified for us and others to get to scale," he says.

Existing footprinting standards already allow for some simplification. Emissions from building factories or manufacturing capital equipment are not included, for example."We have tried to strike a pragmatic balance, to do this in enough detail that you can find efficiencies and inform consumers, but not go to the extreme that this is so expensive that it can't be deployed at scale," says Mr Morrison.

Dieter Helm, an energy-policy expert at the University of Oxford, proposes a colour-coded scheme that lets consumers see which products in a given category have bigger-than-average footprints, and which have smaller-than-average footprints. Unlike precise figures in grams, this would be easier for consumers to understand and for companies to compile. And arguments between retailers and suppliers about whose products were greener would helpfully raise consumer awareness, he says.

The power of the label

Given the international nature of many supply chains, the process of working out products' carbon footprints is also helping to change the way carbon emissions are reckoned. Rather than totting up national totals, it makes more sense to think about cross-border carbon flows. "This helps you understand our emissions are happening around the world," says Mr Morrison.

Between 1990 and 2008, for example, European Union countries reduced total carbon emissions in their own territories by 6%. But this improvement was almost exactly cancelled out by the extra emissions associated with goods imported into the EU from China, according to a recent study by Glen Peters at the Centre for International Climate and Environment Research, in Oslo, and his colleagues. Add in other imports of such "embodied" carbon emissions from other countries, and Europe's overall carbon emissions actually increased by 6% over that period.

By getting firms to assess and reduce the emissions of products with imported inputs, however, carbon footprinting gives firms in the rich world a motive to cut emissions in the developing world, through efficiencies and investment in clean

technologies. Carbon labels promise to make carbon footprints and carbon flows visible. But making them work on a large scale will involve striking the right balance between accuracy and practicality.

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The future of armour

The armour strikes back

Military technology: Better protection systems based on a range of new technologies are helping to keep armoured vehicles in the fight



IN THE first few days of the Yom Kippur war in October 1973, Israeli armoured units were attacked by Egyptian forces armed with Soviet-made anti-tank missiles. The Israelis "suffered wholesale destruction", according to an American Army manual written soon afterwards to help counter the weapon in question. There was not much that could be done. As the American guide noted, the missile system-called Sagger by Western forces-could be carried in a suitcase, launched and steered using a joystick to hit a target 3km (1.9 miles) away. It would then penetrate any vehicle armour in existence.

Tanks had been destroyed with weapons carried by foot soldiers before; America introduced its M1 Bazooka during the second world war. But never had infantry so decimated armoured vehicles. Of Israel's roughly 2,120 tanks, about 840 were destroyed during the 20-day war. The era when "the tank was king" had ended, says Keith Brendley, head of Artis, an American firm that develops protection systems for military vehicles. Since then anti-tank munitions have become even more powerful, but steel armours have improved little. Now, however, aided with new materials and advanced sensors, a promising and eclectic array of alternative and often ingenious new forms of armour is emerging.

Anti-tank missiles and rocket-propelled grenades (RPGs) penetrate armour with a shaped charge. This explodes after the tip of the warhead has sunk into the target. The brunt of the blast is projected straight ahead, forcing a powerful spike of metal, usually copper, into and through the armour. Using steel alone, few vehicles today could carry enough armour to stop even an inexpensive RPG reliably.

Armour that explodes? Yes, really

To provide added protection, engineers have developed explosive-reactive armour. This involves covering parts of a vehicle with bricks of plastic explosives sandwiched between metal plates. When a warhead hits the outer metal plate, the

explosives underneath (also specially shaped) detonate and force the sandwich to rapidly bulge as the plates move apart. This can shear the armour-piercing spike into bits, which are then less likely to pierce the underlying armour.

The Israel Defence Forces, shaken by their losses during the Yom Kippur war, developed an early but effective explosive-reactive armour that kept tank losses exceptionally light during the 1982 Lebanon war. The innovation, however, created a new problem: the explosive bricks generate shrapnel which can kill nearby infantry or civilians. As a result, when America's Bradley and Stryker fighting vehicles are clad in explosive-reactive armour they are not used in civilian areas.



Dynamit Nobel Defence

Dynamit Nobel Defence, based in Burbach, Germany, is marketing a new metal-free explosive armour, called CLARA, that limits the number of such flying fragments. (The replacement materials are secret.) But no army has purchased it. Defence officials with one western European government have expressed concern that the extra protection to their armoured-vehicle crews would come at too great a cost: even explosive armours that produce less shrapnel could unacceptably endanger people near vehicles. Peter Lehniger of Dynamit Nobel Defence concedes that the armour "may not be, from a moral point of view, a good trade-off".

Engineers are finding ways to use less explosive material. OJSC NII Stali, a Russian manufacturer, claims that by 2008 its reactive armour required only a quarter of the amount of explosives used in its 1999 version, but provided just as much protection. The earlier model's explosives detonated three to five microseconds after a warhead strike. Such "sluggishness", according to the firm, has been eliminated, reducing the penetrating power of the spike. A danger, however, is that faster-reacting, more-sensitive explosives might detonate accidentally if hit by a bullet or another vehicle.

OJSC NII Stali and others are now developing non-explosive reactive armour, known as NxRA. This uses "energetic" but non-detonating rubber-like materials. Sandwiched between hard plates, they discharge a rapidly expanding gas to absorb energy from a warhead. The gas pushes out the external layer of armour so that it encounters the emerging spike at a glancing angle. "Bulging armour", as this system is sometimes called, also increases the distance a spike must travel to enter the crew compartment.

Non-explosive reactive armours typically provide less stopping power, but they have an advantage in countering "tandem charge" munitions from systems like America's shoulder-launched Javelin and aircraft-launched Hellfire missiles. Once a brick of explosive armour detonates, that spot becomes more vulnerable to a second charge carried towards the rear of the same munition and detonated about 500 microseconds later. Rubbery non-explosive armour, in contrast, often remains partially intact. So-called "cage" armour can provide additional protection against tandem charges: metal bars (or even a strong fabric-like material) can make a warhead's first charge detonate a couple of dozen centimetres away from the vehicle.

With a clean hit, the Russian-made RPG-7, the most widely used anti-tank weapon, can sometimes penetrate more than 25cm of solid steel. A more recent model, the RPG-29, is even more formidable. To counter it, some European Union countries are developing electric armour. This consists of two electrically charged metal plates separated by an insulating

layer. The idea is that when hit, the metal in a projectile shorts the two charged plates together, forming a circuit and releasing a surge of electricity which can break the warhead up.

Antoine Vincent, in charge of electric armour for the European Defence Agency (EDA), says it has tested well against RPGs. A study by BMT Defence Services, a British firm, notes that electric armour, being lightweight, makes it easier to airlift vehicles. Even so, neither BMT nor the EDA think the technology will be deployed soon. It has proven difficult to rearm the metal plates from batteries fast enough to zap the second charge of a tandem warhead. Some of the power-management technologies being developed for electric vehicles may help on that front. But, says Mr Vincent, electric armour still does not deliver enough electricity to fry the metal in many kinetic-energy projectiles, which destroy armour with their impact. An RPG warhead may eject a copper spike weighing several hundred grams. Kinetic-energy projectiles can weigh several kilograms.

Another approach is to use new materials. Steel armour performs well against a powerful, broad blast, but if the energy is focused on a small spot the metal can "melt like butter", says an engineer with an American manufacturer of armoured vehicles. To cope with that, scientists have developed hard ceramic composites made from rubber and epoxy resins. Unlike steel, they respond to tremendous pressure by snapping. This action can break up a projectile or a shaped charge. A ceramic armour called Dorchester Level 2, used on British Challenger 2 tanks, is reportedly at least three times as resistant to some strikes as the same weight of steel.

The shockwave from a buried "improvised explosive device" (IED) can tear into a vehicle or toss it over. SJH Projects, a small British company, has developed a so-called "stone sponge" material that, fixed to a vehicle's undercarriage, partially absorbs the blast. XPT, as it is called, is a roughly 2cm-thick sheet of silica particles glued together with a strong, heat-resistant resin. Small pores, visible with a magnifying glass, channel the blast into mazes of micro-chambers. As they are destroyed, the blast-energy is absorbed. It costs about $17,000 to protect a jeep-sized vehicle using XPT, and it only works once. Steve Holland, the owner of SJH Projects, says NATO trials with crash-test dummies show that the material dramatically reduces spine and skeletal injuries.

Does this mean armour is catching up with weapons technology? Hardly. Armour is getting better, but weapons are getting deadlier. Consider the Panzerfaust 3 (literally, "tankfist"), a shoulder-fired anti-tank guided missile that flies at more than 720kph (450mph). After striking its target, the exploding warhead shoots out a spike of copper at more than 7km a second (25,200kph) with enough energy to blast through a metre of steel, or any armoured vehicle used today, according to its manufacturer, Dynamit Nobel Defence. (Like many defence suppliers, it makes both weapons and anti-weapon systems.)

Moreover, some munitions can kill a tank crew without even penetrating the armour. A high-explosive munition known as "squash head", fired by some British tanks, flattens a ball of plastic explosives against an armoured vehicle. It immediately explodes, transmitting a compression shock wave into the crew compartment, where it strips off "spall"-flakes of metal, some the size of a frisbee-that fly into occupants. Summing up the outlook for vehicle survivability, Stuart Wheeler, an armour expert at the Tank Museum in Bovington, England, says: "It looks grim." Armour and vehicle designers, he says, are still looking for a comeback.

Fight fire with fire

It may be on the way. On March 1st an RPG was fired at an Israeli tank patrolling near the Gaza Strip security barrier. A radar system on the tank tracked the incoming warhead, feeding data to a computerised gun that shot it down with a small burst of projectiles. Israel plans to deploy the system, called Trophy, more widely. Daniel Klein, an armaments official at the EDA, reckons that the foiled attack, probably the first of its kind, bodes well for defending military vehicles. An additional benefit, he believes, is that Trophy and other so-called "active protection" systems are lightweight. Some modern military vehicles have become so heavy with armour that their manoeuvrability is impaired and they are unable to use certain roads and bridges.



The new Iron Curtain

Iron Curtain, another active-protection system, has been developed for American forces by Artis. It uses radar and optical sensors to calculate the trajectory of an incoming warhead, and then intercepts it with a projectile fired from a roof-rack (pictured). The impact causes the warhead to combust before it hits the armour. Mr Lehniger, of Dynamit Nobel Defence, says that Iron Curtain and similar systems might be able to defeat his firm's Panzerfaust 3 missile. If so, the achievement will be especially instructive to those who, decades ago, considered protecting vehicles to be a doomed endeavour.

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Inside story

Parallel bars

Computing: Parallel programming, once an obscure niche, is the focus of increasing interest as "multicore" chips proliferate in ordinary PCs



HAVE computers stopped getting faster? If you looked only at the clock speeds of microprocessor chips, you might well think so. A modern PC typically has a processor running at 3.0GHz (3 billion clock ticks per second), little changed from a PC made three or four years ago. Clock speeds, which used to double every couple of years, have stopped increasing because as chips are clocked at higher speeds they become difficult to cool and much less energy-efficient. Instead, extra oomph has been added in recent years by packaging multiple processing engines, or "cores", inside a single chip. Modern PCs and laptops typically have dual-core processors (such as the Intel Core i3) and some have quad-core or even six-core chips.

You might expect a six-core machine to be six times faster than a machine with a single-core microprocessor. Yet for most tasks it is not. That is because nearly all software is still designed to run on a single-core chip; in other words, it is designed to do only one thing at a time. A few pieces of specialist software can take advantage of multiple cores: image-processing software, for example, may divide up a difficult task and farm it out to multiple cores to get it done faster, combining the results when each core has finished its work. And the computer's operating system may be able to assign different tasks to different cores, to ensure that, for example, video playback in a web browser does not slow down while a hard disk is scanned for viruses. But your spellchecker will not run six times faster on a six-core machine unless it has been specially written to share out the work between the available cores, so that they can tackle the job in parallel.

"We're not going to have faster processors," says Katherine Yelick, a computer scientist at the Lawrence Berkeley National Laboratory in California. Instead, making software run faster in the future will mean using parallel-programming techniques. This will be a huge shift. At present, mainstream programs written for PCs (such as word-processor software), and specialist programs written for supercomputers with thousands of processors (such as climate-modelling or protein-folding software), are written using entirely different tools, languages and techniques. After all, software written for one sort of machine is not expected to work on the other.

But the distinction between the two is slowly breaking down. Intel, the world's biggest chipmaker, has demonstrated a 48-core processor, and chips with hundreds of cores seem likely within a few years. What was once an obscure academic problem-finding ways to make it easy to write software that can take full advantage of the power of parallel processing-is rapidly becoming a problem for the whole industry. Unless it is solved, notes David Smith of Gartner, a market-research firm, there will be a growing divide between computers' theoretical and actual performance.



Not the road to riches

Surely this problem will be solved by some bright young entrepreneur who will devise a new parallel-programming language and make a fortune in the process? Alas, designing languages does not seem to provide a path to fame and riches. Even the inventors of successful languages are mostly unknown within the industry, let alone outside it. Can you name the inventors of COBOL, C, Java or Python? (The answers are Grace Murray Hopper, Dennis Ritchie, James Gosling and Guido van Rossum.) "There are thousands of programming languages, and only a handful are used by more than their inventors," notes David Patterson, a computer scientist at the University of California at Berkeley.

Parallel-programming languages in particular tend to languish in academic obscurity. There are dozens of them-by one count, more than a hundred. None is popular. The reasons for this neglect are simple and longstanding, says Craig Mundie, chief research and strategy officer at Microsoft. He spent most of the 1980s and early 1990s at Alliant, a supercomputing company he co-founded that planned to convert ordinary (or "sequential") software into parallel software automatically. But there was little demand, because most existing programs do not lend themselves to running in parallel. Making efficient parallel software means starting from scratch.

Dr Patterson likens parallel programming to having ten reporters each write a paragraph of a news story. They might get the story written ten times faster than any one of them could on his own, but will it make much sense? Throwing 100 or 1,000 reporters at the same problem does not help-instead, the task becomes even more difficult, because each reporter must co-ordinate his actions with the others. In practice, that may involve a lot of waiting around for others to complete their subtasks. And what happens if two writers both end up waiting for each other? In the world of parallel programming, the resulting stoppage is known as "deadlock".

Another obstacle to parallel programming is cultural. "Our conscious minds tend to think in terms of serial steps," says Steve Scott, chief technology officer at Cray, a storied maker of supercomputers. (A Cray machine was, until November 2010, the world's fastest general-purpose supercomputer.) Undergraduate courses tend to focus on sequential programming-not surprisingly, since the industry is still dominated by sequential code except in a few specialist niches, and most programmers spend their time maintaining or extending old code, rather than writing entirely new code. At SC10, a computing conference held in New Orleans in November 2010, experts discussed the need to change curricula and update textbooks to reflect the growing demand for parallel-programming skills in general-purpose computing, and not just in scientific computing. This will take years.

A further difficulty is the lack of tools for working with parallel code, such as compilers, to translate human-readable code into something a microprocessor can run, and debuggers to find mistakes. Debugging code on a parallel machine with hundreds or thousands of cores creates unique problems, and may be the biggest single challenge facing parallel programming, says Charles Holland of the Defence Advanced Research Projects Agency (DARPA), the research-funding agency of America's Department of Defence. In all, it is not hard to see why there has been so little progress in parallel programming, even though multicore chips have been widespread for five years.

But efforts are being made to get things moving. DARPA, renowned for its role in catalysing the development of the internet, has been taking a top-down approach. In 2001 it challenged America's computer-makers to build a new generation of high-performance supercomputers that are both easier for programmers to use and far more powerful than existing machines. The DARPA challenge included the development of new parallel languages and programming tools, in addition to hardware. The hope is that as these new machines are adopted (the first, IBM's Mira, will go into operation at the Argonne National Laboratory in 2012), there will be a "trickle down" effect as their parallel-programming tools become widely used.

As part of the project IBM has developed a parallel-programming language called X10. Cray, the other finalist in the DARPA scheme, is developing a parallel-programming language called Chapel, which is designed to allow code to run on everything from a multicore desktop machine to a huge supercomputer. Both X10 and Chapel are entirely new languages, though they are intended to be approachable by programmers who are familiar with other languages.

Parallelise this

Intel and Microsoft, meanwhile, are taking a bottom-up approach. Intel in particular has a direct commercial interest in promoting parallel programming, because if software is unable to make full use of the computing horsepower of its chips, customers will be less inclined to upgrade their hardware. Microsoft, meanwhile, wants to ensure that it maintains its position as a leading provider of programming tools. The two companies have invested a total of $16m in two new parallel-computing research centres at the University of California at Berkeley (led by Dr Patterson) and the University of Illinois at Urbana-Champaign, with the specific aim of producing tools to program multicore systems.

Rather than devising entirely new parallel languages, Intel and Microsoft have focused on extending existing languages, such as C++ and Fortran, by adding support for parallel coding. This lets programmers use tools and languages that they already know well. The two firms' marketing muscle should help promote adoption, says Marc Snir, the head of the parallel-computing research centre at the University of Illinois and a veteran of the parallel-programming field. Intel, for example, has recently been promoting new parallel-programming tools that help programmers take advantage of its latest family of multicore processors, known as Sandy Bridge, each of which has between two and eight cores.

Meanwhile, a group of obscure programming languages used in academia seems to be making slow but steady progress, crunching large amounts of data in industrial applications and behind the scenes at large websites. Two examples are Erlang and Haskell, both of which are "functional programming" languages.

Such languages are based on a highly mathematical programming style (based on the evaluation of functions) that is very different from traditional, "imperative" languages (based on a series of commands). This puts many programmers off. But functional languages turn out to be very well suited to parallel programming. Erlang was originally developed by Ericsson for use in telecoms equipment, and the language has since been adopted elsewhere: it powers Facebook's chat feature, for example. Another novel language is Scala, which aims to combine the best of both functional and traditional languages. It is used to run the Twitter, LinkedIn and Foursquare websites, among others.

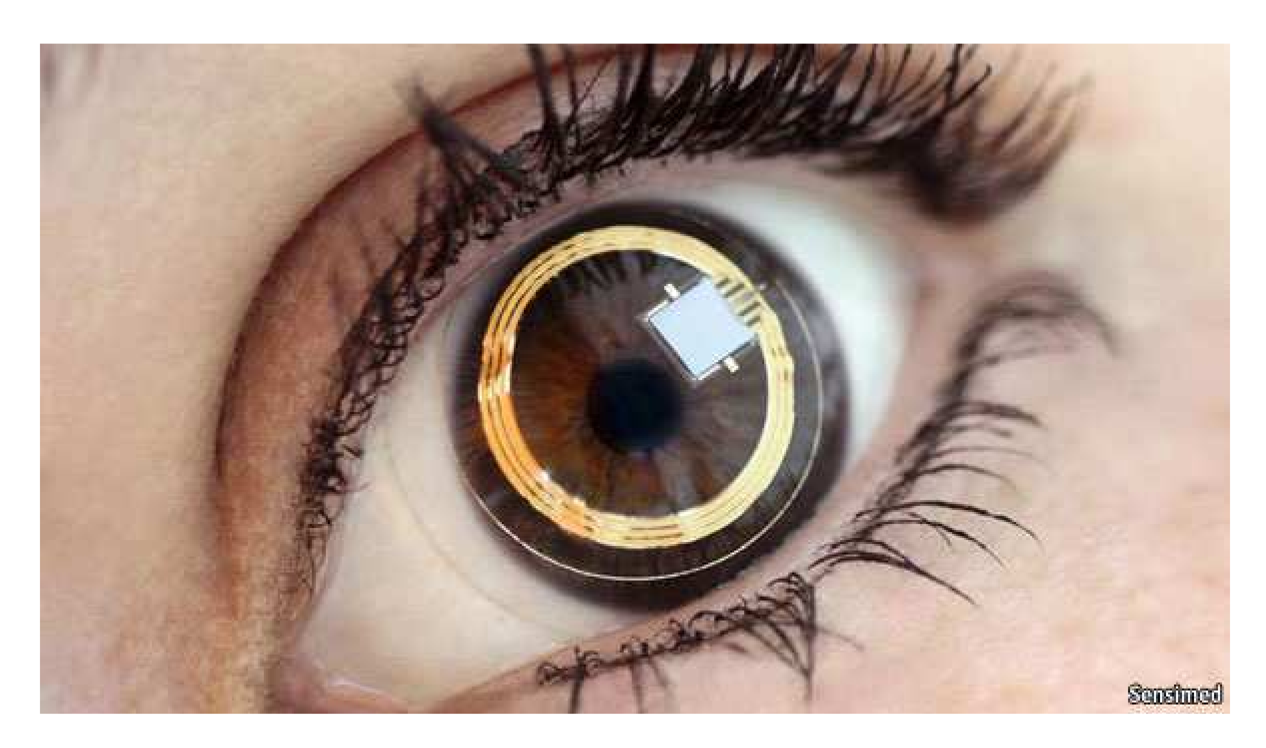
The problem is still far from solved. But serious efforts are finally being made to make parallel programming easier and more approachable. Will the tools to take advantage of multicore chips come from a trickle-down of high-end scientific computing techniques, the extension of existing programming languages or the spread of previously obscure languages, driven by the needs of web developers? More than one of these paths may prove successful. And, appropriately enough, the search for new parallel-programming techniques is itself a parallel process.

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Contact lenses

Look into my eyes

Biotechnology: Smart contact lenses exploit the unusual characteristics of the eye to diagnose disease, deliver drugs and more besides



EYES can reveal an awful lot about somebody. Look into someone's eyes and you can tell if he is happy or sad, truthful or insincere, sober or drunk. By peering deeper still, ophthalmologists are even able to gauge a person's health, spotting far more than just conditions that affect the eye itself: hypertension and brain tumours can also be diagnosed by examining the retina. Eyes are in many respects windows on the body, even if they are not quite windows on the soul.

And now contact lenses, normally used to bring the outside world into focus, are making it possible to peer back in through these windows. The idea of "smart" contact lenses that can superimpose information on the wearer's field of view has been around for a while, but contact lenses are also being developed that use embedded sensors and electronics to

monitor disease and dispense drugs. Such devices may eventually be able to measure the level of cholesterol or alcohol in your blood and flash up an appropriate warning.

The technology has huge potential, says Babak Parviz, a researcher at the University of Washington, in Seattle, who is one of the pioneers of smart contact lenses. Such lenses could act as both sensors and displays, providing new ways for data to pass in and out of the body. By adding tiny light-emitting elements to contact lenses, it is becoming possible to map digital images directly onto the wearer's field of vision to create a head-up display or augmented-reality overlay that requires no glasses, screen or headset. "The ultimate goal would be to have a fully fledged display," says Dr Parviz.

The first smart contact lenses are already on the market. The Triggerfish, created by Sensimed, a spin-off from the Swiss Federal Institute of Technology in Lausanne, is a wirelessly powered contact lens designed to help people with glaucoma manage their treatment. It does this by continuously measuring the curvature of the eye over a 24-hour period using a tiny strain gauge, built using micro-electromechanical system (MEMS) technology, which is incorporated into the lens.

In patients with glaucoma, fluid builds up within the eye and puts pressure on the optic nerve. If it isn't treated correctly this can irreversibly damage the patient's vision, says Jean-Marc Wismer, Sensimed's chief executive. But determining the correct drug treatment depends upon first knowing when during the day the intraocular pressure (IOP) peaks.

The profile of this pressure is believed to follow characteristic circadian patterns. But at the moment there is no technology that can measure it continuously. "The standard today is to place patients in a laboratory for 24 hours," says Mr Wismer. During this time a patient's IOP can be measured every few hours using a standard machine called a Goldmann tonometer. But although this approach can measure the IOP very effectively, it is unable to do so continuously.

An eye for an eye



A sight for sore eyes, perhaps

By measuring the changes in the curvature of the eye caused by a build-up of internal pressure, Sensimed's Triggerfish lens can build up a much more accurate profile. In addition to the strain gauge, all the electronics required to handle the signal-processing and communications are embedded within the silicone lens (pictured).

An induction loop is used to power the device and to relay data from the lens to a receiver worn by the patient. (Induction loops are also used to power hearing-aid implants without the need for troublesome wires.) Since the end of 2010 the technology has been available in eight European countries, and approval in America is expected by the end of this year, according to Mr Wismer. "We currently have about 200 patients in total," he says.

The device does have one significant drawback, however. The short range of the induction-loop antenna in the lens means the external antenna has to be very close to the eye: taped around the eye socket, in fact. Wearing a small chip in your eye (normal vision is not impaired) looks strange enough, but having a giant monocle taped to your head looks stranger still.

It is less than ideal, Mr Wismer admits, but his firm's device is not meant to be worn continuously. Instead, the idea is that it would be worn for 24 hours once every six months or so. The hope is that this device will help to improve the treatment of glaucoma by illuminating the relationship between variations in the IOP and the progression of the disease.

Another smart contact lens is, however, designed to be worn continuously. Although still under development, this lens is aimed at treating diseases rather than monitoring them. It has been developed by Daniel Kohane, a professor of anaesthesiology and director of the Laboratory for Biomaterials and Drug Delivery at the Children's Hospital in Boston. His smart lenses are designed to release drugs slowly into the eye over a long period.

Compared with the simplicity of eye drops this may seem a bit over the top, but there are very good reasons to develop this sort of technology, says Dr Kohane. "Eye drops are not very efficient-only a small fraction actually gets into the eye," he says. "But the bigger problem is compliance." A common problem with ophthalmic diseases is that patients fail to apply their eye drops as prescribed. "Things that should work don't work, and that leads to an escalation of the disease and the therapy."

A new perspective on drug delivery

Dr Kohane's solution is to create a type of contact lenses that has encapsulated within it a pouch containing a drug. "It's a flat toroid or doughnut made out of a permeable polymer that contains the drug," he says. "As the film degrades it releases the drug, leaching out slowly." The payload could be almost anything, such as a painkiller, an antibiotic or an anti-inflammatory drug. In vitro experiments have showed that such a lens could continue to release ciprofloxacin, an antibiotic, in a controlled manner for more than 100 days.

The current design is purely passive, but Dr Kohane is now working on a version that can be triggered in response to a particular stimulus. If his lens were to be combined with sensors like those found in the Triggerfish, for example, it would be possible to monitor the IOP and deliver glaucoma drugs when it peaks. But there are other things that have to be taken into account. "If I cough, my IOP goes up," says Dr Kohane. A smart contact lens would have to be clever enough to cope with this.

An additional concern is the effect his therapeutic lens may have on the wearer's vision. "A concern is that as the drug is released, the change in shape will alter the focus of the patient," says Dr Kohane. This is one reason why the pouch is doughnut-shaped, so that it wraps around the pupil without obscuring the wearer's vision. "As far as we can tell that doesn't change it much," he says.

Smart contact lenses don't just have to focus on monitoring or treating the eyes. Dr Parviz has been developing a different type of lens intended for monitoring glucose levels in people with diabetes. The eye is a surprisingly good place to do this non-invasively, because glucose levels in tear fluid correspond directly to those in the blood, he says. This means levels can be continuously gauged without so much as a pinprick.

To measure the glucose level Dr Parviz uses a technique called amperometric sensing that involves measuring the changes in tiny currents between sets of electrodes. Like the Triggerfish, the lens is powered and communicates wirelessly. But his design has a greater range, so no induction loop around the eye is needed.

Tests on rabbits have showed that the lenses work and can detect even very low glucose levels, says Dr Parviz. But there is a problem with using amperometric sensing: the electrodes are not sealed within the lens, and therefore are exposed. Proteins then build up on the sensors, affecting their operation and reducing the useful lifespan of the lens. It is possible that cleaning the lens regularly could reduce this problem, but it is unclear what effect lens-cleaning fluid would have on its built-in electronics. Tears also pose a problem, because they contain electrically charged atoms, or ions, which interfere with the operation of the smart lens's built-in antenna.

As with Sensimed's device, all the electronics and sensors in Dr Parviz's contact lens are located outside the central area of the lens, to avoid interference with the wearer's vision. But Dr Parviz wants to add display elements, in the form of tiny embedded light-emitting diodes (LEDs), to his lenses so that they can overlay information on the wearer's field of view.

Dr Parviz has already demonstrated that red and blue dots, or pixels, can indeed be embedded in lenses, though green will also be required to create a full-colour display. He has shown that the pixels can be powered wirelessly and he has demonstrated that he can shrink the optics required to bring these dots of light into focus, even when they are so close to the eye. So far, however, the closest Dr Parviz has come to creating an actual display is a lens containing a grid of just eight pixels.

Given the ubiquity of high-definition screens containing millions of pixels this may not seem very impressive. But it is worth remembering that this is much more difficult than creating normal displays. Quite apart from the challenges of powering such a small device and bringing the pixels into focus, the small size of a contact lens means that the pixels will have to be much smaller than those in a typical computer monitor or mobile-phone display in order to provide a similar resolution. "Our smallest ones are about 50 microns across," he says. "We can definitely make them smaller." He will have to: a pixel on a high-resolution iPhone screen, by comparison, is about 80 microns (millionths of a metre) across.

It is still early days for this new field. Dr Parviz's immediate goals are to build simple, low-resolution displays, and to develop other types of biosensor, such as one capable of measuring lactic-acid levels in athletes during training. As he and other researchers develop smart contact lenses with new capabilities, this is a technology that is worth keeping an eye on.

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Brain scan

Alpha geek

Stephen Wolfram, a brilliant but controversial computer scientist, says he has devised a "new kind of science". Has he really?



"THERE is no dramatic distinction between the processes of the weather and the workings of the human brain," says Stephen Wolfram, a physicist and the founder of Wolfram Research, a software company. "There isn't anything incredibly special about intelligence, it's just sophisticated computational work that has grown up throughout human history." Dr Wolfram is hardly the first scientist to compare the human brain to a computer. Alan Turing, who helped develop the precursors of today's programmable computers during the second world war, began considering the possibility of thinking machines in the 1940s. The difference is that Dr Wolfram claims to have succeeded in codifying vast areas of human knowledge and even replicating supposedly uniquely human attributes such as creativity.

"One of my realisations, or maybe it's just a piece of arrogance, is that the amount of knowledge and data in the world is big, but it's not that big," he says. "In astronomy, there's a petabyte-a million gigabytes-of data about what's out there in the universe. There are also swathes of data from digital cameras, Twitter feeds and even road-traffic movements. It's a bit daunting, but I soon realised that the bigger challenge is not the underlying data but the computations that get done on them."

Dr Wolfram has a reputation for making sweeping claims. Once described by *Wired* as "the Bob Dylan of physics", he is a reclusive and controversial figure who has always defiantly done his own thing. Born in London in 1959, he studied at Eton and Oxford, dazzling and infuriating his teachers in equal measure and leaving the university without graduating. He published his first scientific paper at the age of 15, completed a PhD in particle physics at the California Institute of Technology, and had joined the faculty and been awarded a MacArthur "genius" award, worth $128,000, by the age of 21.

The MacArthur money helped Dr Wolfram set up his company, Wolfram Research, in 1987. Its first product was Mathematica, a piece of software that automates mathematical processes. It solves equations, plots graphs, creates models and analyses data. Mathematica is hugely popular among engineers, scientists and financial analysts, and its success gave Dr Wolfram the financial security to continue to do his own thing as an independent scientist and researcher.

His most recent venture is Wolfram Alpha, a website launched in 2009 that he describes as a "knowledge engine that computes answers to questions". Type in "GDP of France versus Britain", for example, and it produces recent figures and a chart comparing the two countries' GDP from 1961-2010. Enter "country with largest population density" and it returns a list, topped by Macau. But type in "best Radiohead album" and it produces gibberish. It is easy to see why comparisons with Google are unfair; rather than trying to organise the world's knowledge, Dr Wolfram wants to make it "computable".

"Search engines are like a blender," he says. "They put all this stuff into one algorithm and deliver a list of links. That's great when it works but it isn't going to work for a lot of the stuff that we care about. Our objective is that pretty much anything you need to go ask a human expert about right now, will be able to be answered automatically." Doing this is, he says, "insanely difficult".

In the beginning

The project's genesis lies in Dr Wolfram's childhood. "Wolfram Alpha today is shockingly similar to ideas I first had when I was 12 years old," he says. Even today, that brilliant child is never far from the surface. Unlike most chief executives, Dr Wolfram would much rather talk about weather prediction or the future of public transport than sales or growth. He considers his 500-strong company his personal intellectual playground, thinking nothing of tasking researchers with assessing his impact in the field of complexity theory or analysing 20 years' worth of computer keystrokes to boost his efficiency. "I found that the best way to do interesting intellectual stuff is to have a company that's successful enough to pay for it," he says.

In fields from archaeology to zoology, his company's researchers are interviewing specialists, scouring the world's libraries and coding the results using Wolfram's own symbolic computing language. With many years of the project yet to run, Wolfram Research already claims to have the largest collection of curated, cross-checked data in the world.

Wolfram Alpha is ambitious, but it pales next to Dr Wolfram's boldest project: an attempt to convince the scientific establishment that computer programs, rather than mathematics, are the best way to describe and explain the complex systems that are widespread in nature. Dr Wolfram calls this approach a "new kind of science", or NKS. That is also the title of the 1,200-page book, published in 2002, in which he lays out his theories, the product of a decade's reclusive work.

NKS is chiefly concerned with the behaviour of very simple computer programs, called cellular automata, that exist in a myriad of variations. Although most are uninteresting, a few of them can exhibit great complexity. One of them produces an endless stream of random output, and another has proven to be the simplest ever universal Turing machine - a hypothetical device capable of solving any computational problem that was imagined by Turing in 1936.

Is the universe a computer?

Dr Wolfram believes that all the vastly different complex processes seen in nature, from the markings on a seashell to weather systems to intelligence itself, are the products of such simple computations. The idea that mathematics underpins the laws of nature, which now seems obvious, was once radical. Dr Wolfram proposes an even deeper law, that the universe is underpinned by a set of simple computational rules capable of producing vast complexity, and that nature is just "sampling what's out there in the computational universe". He claims that applying NKS widely could lead to advances not only in mathematics and computing but also physics, biology and even the social sciences.

"I have come to view NKS as one of the more important single discoveries in the whole history of theoretical science," Dr Wolfram declares in his book with characteristic immodesty. Needless to say, not all his peers agree. Some have pointed out that much of his "new kind" of science closely resembles the well-established fields of cellular automata and complexity theory. Others point to a lack of real-world verification for many of his more grandiose claims, or a failure to give sufficient credit to other researchers for some of the ideas presented in the book.

"I collect insults and compliments," Dr Wolfram admits. But his company is already proving the value of his unusual new approach by using it in its products, he claims. "In Mathematica and Wolfram Alpha, there are all kinds of things that we can already compute faster, better and stronger than anybody else, using NKS, a methodology that other people think is completely insane. NKS absolutely gives us a competitive advantage."

Instead of laboriously constructing an algorithm to solve a particular problem, Wolfram Research hunts for candidate programs using NKS-mining the computational universe in just the way that Dr Wolfram believes nature itself does. "We can go out into this computational universe and find all these different programs, each one with its own unique scheme for doing things," he says. "That's usually a very human activity that you might think would involve creativity."

Such computational creativity can be seen (or, more precisely, heard) in action at the Wolfram Tones website, which can produce a two-minute tune in any of 15 genres using NKS. "What I've heard from a surprising number of very upscale, reputable composer types is that this is actually pretty useful," says Dr Wolfram. They go to the website, press the button a few times and get some ideas. Creativity is now free." Zing! Another Wolframism.

Dr Wolfram has no shortage of ideas for how to apply NKS. He predicts algorithmic drugs that tour the bloodstream and activate when needed; universal assemblers to build almost anything from its raw ingredients; DNA-based processors. The future, he says, will not look anything like the present. "We live in a period when technology looks very organised. But that's a fluke, a feature of the history of engineering that reflects what we've learned to build. When we start just going out into the computational universe and finding stuff that works, it's all going to look a lot more bizarrely random."

To say that NKS is far from widely accepted would be an understatement of Wolframic grandiosity. Nearly ten years after the book's publication, there are still just a handful of academic conferences devoted to NKS each year, most of which are sponsored by Wolfram Research. Academic interest in Dr Wolfram's ideas has probably not been encouraged by his deep and abiding personal distaste for mainstream education.

"You have to ask, what's the point of universities today?" he wonders. "Technology has usurped many of their previous roles, such as access to knowledge, and the social aspects." One of the challenges for the 21st century, he suggests, is working out what is even worth teaching. He claims that he recently realised that he had never learned to do long division. "I just missed having to know it and have never needed it. My kids actually showed me how to do it," he says.

He is no longer an academic, but Dr Wolfram does not see himself as a businessman either. "I am not looking to make the biggest possible company. When a company gets really big there are a lot of things that get kind of dull," he says. Nonetheless, he sees great potential in applying his firm's analytical tools to new sources of data in future.

"Lots of new kinds of large scale data sources are starting to show up," he says. "Personal-analytics data is going to be big, with people measuring many things about themselves because it's easy to do so. For instance, I had my entire genome sequenced last year. This illusion that it's all too big, that you can't possibly curate the world's knowledge, is just not true."

It is difficult to assess the validity of Dr Wolfram's theories, or how he will be judged b.y history. Einstein's bizarre-sounding theories, he notes, took years to become accepted. Is he really a figure of similar importance, as he seems to think? Dr Wolfram presented his ideas at the TED conference in California in 2010, and the audience tittered as he casually likened his creation of Mathematica with Galileo's construction of a telescope, and claimed that NKS was superior to the mathematics-based science of the past 300 years, thus comparing himself implicitly with Newton. Even so,

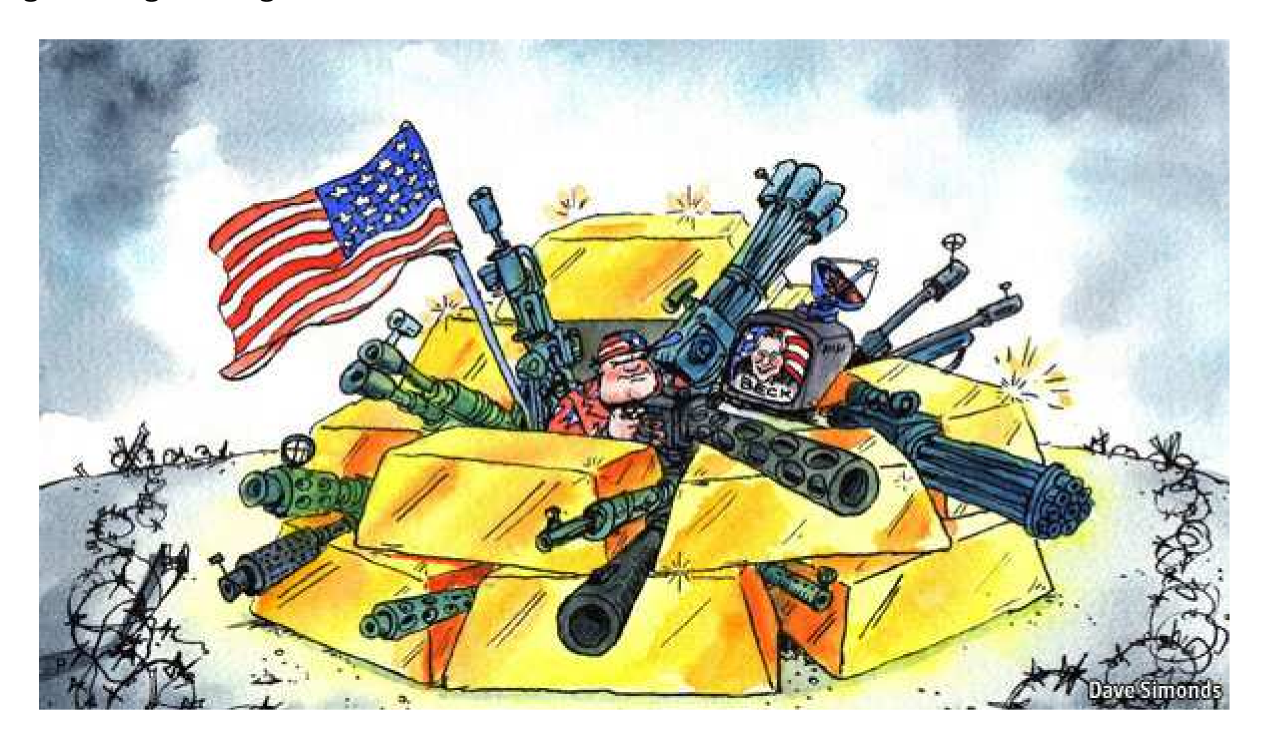
his speech received a standing ovation. But winning over a conference audience is one thing; convincing the scientific community to accept his ideas will be much harder.

Offer to readers

Mining

The wacky world of gold

Why gold bugs no longer love gold miners

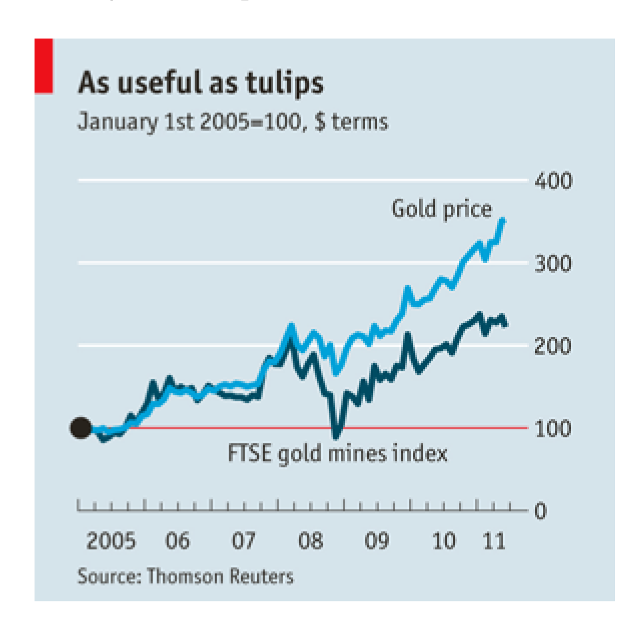


STRIKING gold is generally considered a slice of good luck. Owning it, however, is a sign that you fear the worst. Some people buy the yellow stuff because they think it looks pretty, to be sure. But the quintessential gold bug is an investor who expects every form of paper wealth to collapse, along with civilisation itself.

Gold is not like other commodities. The demand for iron ore depends on down-to-earth things, such as how many steel girders Chinese builders are using. The demand for gold depends on airier considerations, such as whether you think Barack Obama is the Anti-Christ.

Not all gold investors stockpile guns and tinned food in remote cabins, of course. Nor are they all fans of Glenn Beck, an American pundit who preaches doom and urges his listeners to buy gold. But most agree that the world is a scary place.

The euro zone is tottering, America's deficit is alarming and inflation is looming, they reckon. Such fears have ramped the price of gold up to an incredible $1,545 a troy ounce, up almost sixfold in a decade.



Yet gold miners' shares have failed to keep pace (see chart). This is new. Gold and gold-mining shares used to rise and fall in lockstep. Over the past five years, however, the price of gold has trebled while the value of gold miners has merely doubled. Investors in firms that shift, crush and process rocks are more grounded, it seems, than those who invest in bullion.

As mines age, extracting gold gets harder and costlier. Ores give up less of the metal-average grades have fallen by 30% since 1999 according to GFMS, a consultancy. And ore must be hauled up from ever greater depths. Fuel is pricier. So, too, are labour and equipment, since the global minerals boom has driven up demand for miners and drills. A decade ago the average cost of extracting an ounce of gold from the ground stood at a little over $200. In 2010 it hit $857, says GFMS-though this figure depends in part on the gold price. When gold was $200 an ounce, nuggets that cost $800 to extract stayed buried.

Finding new seams to replace depleted ones is becoming harder. Metals Economics Group, a mining consultancy, estimates that in 2002 gold miners spent $500m on exploration. By 2008 they were spending $3 billion but finding much less. All the easy gold has been mined already.

The big gold-mining firms have turned to acquisitions to boost their reserves. Last year Australia's Newcrest bought an Aussie rival, Lihir Gold, for $8.7 billion. By value, 31% of the mining deals last year involved gold, according to the consulting arm of PwC. Merged firms seek to cut costs, and often end up spending less on exploration than they did separately. That makes it even less likely that they will find much more gold.

The world's miners dug up 2,689 tonnes of gold last year. Granted, that was a record. But, despite the huge surge in investment, it was only a few flakes more than the total output a decade ago.

Investing in gold miners carries risks unrelated to the price of the metal. Mergers can flop. As readily recoverable reserves dwindle in stable places such as North America and Australia, miners are forced to operate in more troublesome ones, such as Latin America and Africa. Huge investments can yield disappointing returns if promising mines turn out to contain less glitter than predicted.

Gold bugs, by definition, bet that the price of gold will go up and up. Miners sometimes do the opposite. Many hedged their wares, selling gold forward to ensure smooth cash flows and to raise money to dig more mines. This may have seemed prudent at the time. But it repelled gold bugs and, as the gold price rose ever higher, it hurt the miners' profits, too. Barrick Gold, the world's biggest gold miner, and AngloGold Ashanti, the third-largest, have both spent billions unwinding hedges over the past couple of years.

Gold bugs are often allergic to other metals. Gold miners are not. Many produce copper, too, since it often sits in the same ore bodies as gold. In April Barrick offered $7.7 billion to trump a Chinese bid for Equinox, an Australian copper miner. The heavy demand in China and short global supply for "red gold" makes Barrick's move look sensible. But gold bugs hated it. Barrick's shares fell sharply after the bid was revealed.

Most damaging of all for the marriage between gold bugs and gold miners has been the arrival of a seductive new financial tool. Exchange-traded funds (ETFs), backed by physical gold, offer investors direct exposure to the gold price without any exposure to gold miners themselves. They have become popular: in less than a decade gold ETFs have gone from nothing to holding some 2,200 tonnes of gold-nearly a whole year's production.

If the world goes to hell, gold bugs will say: "I told you so." But if investors ever wake up and notice that the yellow metal is little more useful than tulips, the gold bugs will be burned. The miners, less so.

Consulting bounces back

Advice for consultants

Competition is growing, and clients are becoming more picky



WHEN times are good, they are very, very good for consultants. But when they are bad, they are horrid. As the economy stalled in 2009, the global consulting industry shrank by 9.1%. It was the worst year since at least 1982, according to Kennedy Information, an industry monitor.

Now the kids are back in the conference rooms. Companies that shelved plans during the recession are dusting them off and looking for help. And the work is more cheerful. When bosses did hire consultants in 2009, 87% of projects were aimed at cutting costs rather than boosting growth, says Kennedy. This year, just 47% of project spending will be on cutting costs. The rest will go on growth plans, from mergers to installing new computer systems. But not all will benefit equally.

Consulting is a diverse industry. Best known are the elite strategy consultancies such as McKinsey & Co, the Boston Consulting Group (BCG) and Bain. Firms such as AT Kearney, Booz & Company and Oliver Wyman do the same sort of work but are smaller. A second category comprises the consulting units of the Big Four accounting firms-PwC, Deloitte, KPMG and Ernst & Young. All but Deloitte shed their consulting units in the early 2000s, amid post-Enron fears of conflict- of-interest, but have since grown new ones. A third group consists of technology firms with big consulting businesses, such as IBM and Hewlett-Packard, which focus on installing and integrating computer systems. Finally, some consultants are hard to distinguish from pure outsourcing firms.

Strategy consulting, the most famous variety, is also the most controversial. "I like to con people. And I like to insult people. If you combine "con" and "insult", you get consult," observes Dogbert, a comic-strip character. Many firms share this harsh view of the highly paid advisers who walk in and tell them to re-invent their businesses. Spending on strategy consulting is expected to grow by an annual average of just 1.1% to 2014 (it currently accounts for 12% of all spending on consulting).

But more mundane work is booming. Kennedy forecasts that consulting on operations-management (advice on how to do the same things better) will grow by 5.1% a year, that on IT by 3.9% and that on personnel by 4.0%, between 2010 and 2014.

North America invented the strategic consultant, but appears not to need many more. Western Europe seems sated, too. Companies are now packed with MBA-holding bosses, many of them former consultants. Well-run companies still know when they need outside expertise, which is why strategy consulting is far from dead. But it is increasingly overshadowed by the less glamorous variety.

Small wonder, then, that the strategy houses are vying for that work. BCG was one of just three big firms to grow (by about 3%) in 2009, and had a good 2010, expanding by some 12%. It is expecting an even better 2012, with 15% growth. (The strategy firms are private partnerships that release few precise figures.) One reason is rapid growth in emerging markets. But BCG, like the other strategy firms, has also made money by grabbing a larger share of "downstream" work.

This is bringing the strategy shops into competition with the biggest players: the Big Four audit firms. These behemoths are buying specialist firms in areas such as technology and health care, thus expanding their size and reach by both specialism and geography. In America they are forbidden from selling consulting to their audit clients. But elsewhere the rules are looser, giving the Big Four a potential "one-stop-shop" offer. Everywhere, they have scale that impresses clients. But those clients are driving harder bargains.

In the past two decades most consulting firms have attached many junior consultants to projects with just a few senior people and partners, moving this army into the clients' offices and billing for as many hours as possible. But increasingly, says Jenny Sutton of the Hong Kong-based RFP Company, clients are refusing to pay for junior staff's on-the-job training. Instead, they are asking for fewer and better consultants and setting them to work alongside their own staff.

In short, consulting is looking less like a licence to print money and more like temporary labour. Clients can bypass the big names and hire consultancies such as Eden McCallum, a British firm that packages teams of experienced independent consultants, or Point B, an American firm that provides only a project manager, letting the client select the team. Big consulting firms (with their big brands) can probably coexist with smaller operators. But midsized firms, which cannot command the same fees and loyalty as the big boys, are feeling the squeeze.

In this, consultants are following a trend that has already hit the law firms whose business model they once copied. Clients want value for money. Consultants whose counsel is useful will still do well. But here's a piece of advice for the rest: in a more competitive market, those who think they can dazzle a client with PowerPoints and bill him by the hour forever will starve. That'll be $1,000, please.

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Mercadona

Spanish aisles

Why a low-price retailer is thriving

FEW domestic firms are prospering in crisis-racked Spain, but Mercadona is. Spain's largest supermarket (by sales) has enjoyed double-digit growth for most of the past decade. When Juan Roig, the chairman, took over in 1981, Mercadona had only eight shops, all in Valencia. Today it has 1,310 and annual sales of euro16.5 billion ($23.8 billion). Spain's economic troubles seem to have made it stronger. Profits dipped in 2009, but surged again by 47% in 2010 after some forceful cost-cutting.



Mercadona's strength is low prices. The family-owned chain does not fritter away cash on advertising. It mercilessly squeezes the suppliers of its own-brand products. These suppliers, of which there are about 100, put up with Mercadona's squeezing because they have a long-term relationship with the company and have grown with it. Since 2009 Mercadona has shaved euro2.2 billion of costs from its products, often with simple adjustments such as reducing packaging. Tight relationships with its suppliers foster innovation. For example, sticking a plastic lid on a large tin of tuna made it easier to open and increased its sales by 60% in 2010.

Even so, Mercadona does not skimp on technology or logistics. It was the first retailer in Spain to use bar-code scanners. And it owns a fully automated logistics warehouse just outside Madrid. Computers monitor deliveries from suppliers and organise shipments to stores. Robot arms stack goods in crates like a game of Tetris.

"Mercadona is unique in several ways," says Zeynep Ton of Harvard University, who wrote a case study on the chain. Its 63,500 employees are on permanent contracts (with bonuses), work regular hours and receive 20 times more training than the staff of an average American retailer. This makes them more productive: sales per Mercadona employee were 18% higher in 2008 than at other Spanish supermarkets. Staff turnover is only 4% a year.

Employees constantly gather feedback from shoppers, whom they refer to, accurately enough, as "bosses". Shops are designed to make shopping quick and easy. The selection is smaller than in other supermarkets, especially after Mercadona took the unpopular decision of eliminating 1,000 products from the shelves in 2009. Own-label items such as Deliplus (a line of cosmetics) account for 38 % of sales. Mercadona products were ranked number one, in terms of value for money, in a recent survey of 5,200 households by TNS, a market researcher.

There is still plenty of room to grow at home. Mercadona accounts for 13.1 % of the floor space in Spanish supermarkets, which makes it the third-largest chain in the country, after France's Carrefour and the co-operative Eroski. It aims to enter the Italian or French market next year, probably through a small acquisition. Mr Roig doubts that the Mercadona model can simply be copied abroad. "We must learn everything from everyone," he says.

Unlike most Spanish bosses, Mr Roig doesn't mince his words. Earlier this year he said the only good thing about 2011 for Spain was that it would be better than 2012. "It will be worse if the Spanish people do not take up the challenge of transforming Spain," he says, by which he means bringing its colossal welfare state under control.

Mr Roig believes that Spain has "great human capital". That is true, but Spain's youth unemployment rate-a staggering 45%-suggests that much of this talent is being squandered. The protesters in the plazas complain that Spain's politicians have lost touch with how ordinary people live. That is not a mistake a supermarket can afford to make.

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Walmart in South Africa

Big boxes for Boks

The world's largest supermarket chain is allowed to invest



Welcome to South Africa

EIGHT months ago Walmart, an American retailer, aired plans to buy 51% of Massmart, a South African one. On May 31st South Africa's Competition Tribunal gave it the go-ahead. Doug McMillon, the boss of Walmart International, says the 16.5 billion rand ($2.4 billion) deal will be completed within "a few weeks".

Despite furious opposition from unions, the conditions were less onerous than the retailers had feared. They include a two-year ban on lay-offs and the creation of a 100m-rand fund to nurture local suppliers-concessions that had already been agreed to. They also include abiding by all existing labour agreements and continuing to recognise the South African Commercial, Catering and Allied Workers' Union as the firm's main bargaining partner for at least three years.

Walmart plans to use Massmart, which has stores in 14 African countries, as a stepping-stone into a fast-emerging continent. But its first target is South Africa, the region's biggest and most developed market. It says it will buy most of its fresh food locally, which is hardly surprising given that South Africa has big, efficient farms and is far from anywhere similarly blessed. It also pledges to open dozens of new stores and create "thousands of new union jobs".

Unions fret that Walmart will bypass local suppliers and buy cheap goods from abroad. The tribunal did nothing to prevent this. (Local quotas would probably have broken World Trade Organisation rules.) Cosatu, the biggest South

African union federation, is still threatening "mass action" if its concerns are not met by the end of June. But cash-strapped shoppers are happy. And so are South African businesspeople. Their country seems a little more welcoming, and its institutions a little more independent, than anyone thought last week.

Southwest Airlines

Smiles and free peanuts

The secret of Southwest's success



These boots were made for flying

ADVERTS from the early years of Southwest Airlines evoke a lost era. "Remember what it was like before Southwest Airlines?" asks a hostess in a 1972 television spot, wobbling across the tarmac in orange micro-shorts and white go-go boots. "You didn't have hostesses in hot pants. Remember?" The airline had started up a year earlier, with three planes shuttling between Dallas, Houston and San Antonio. It later acquired a ticker on the New York Stock Exchange-"LUV"-that fitted its perky image. On early flights, hostesses plied passengers with free cocktails.

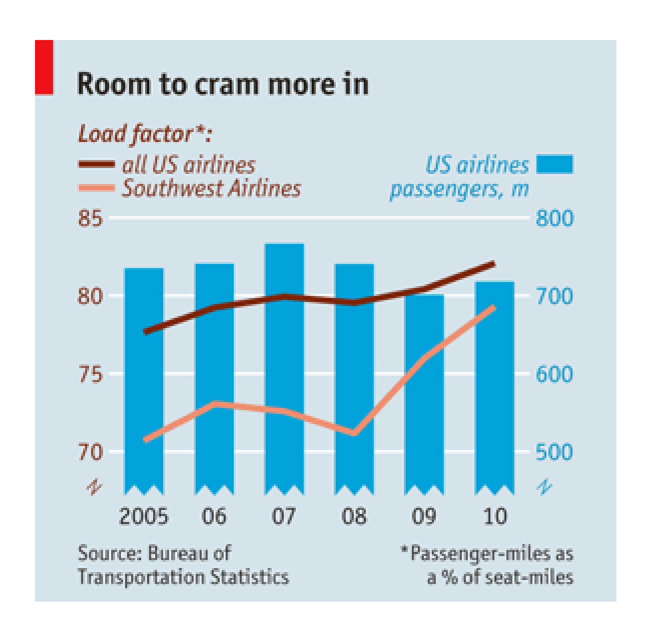
Forty years later, Southwest has become America's largest low-cost carrier. That is a striking change. Southwest was for a long time the underdog of American aviation. During the 1980s it was downright frumpy, flying middle managers to Kansas City on bargain fares. But it has now developed a mix of low fares and friendly service that appeals to America's vast herd of cattle-class commuters. RyanAir and easyJet, two of Europe's leading budget airlines, learned many of their tricks from Southwest.

Last month it announced first-quarter revenues of $3.1 billion, up 18% from the first quarter of 2010. Profits were a negligible $5m for the quarter, but this was still better than American, Delta or the merged United Continental, all of which lost money. Southwest has increased its capacity, too. In 2009 it began its first services to New York City and Boston and in 2010 it launched a nonstop "nerd bird" between the high-tech hubs of Austin and San Jose. On May 2nd it completed a $1.4 billion acquisition of Atlanta-based AirTran. The move brings Southwest about 700 new flights, putting the total to just above 4,000. Now the airline has access to the bustling hub at Atlanta for the first time, and some short-haul international flights.

The soaring cost of jet fuel will probably force all carriers to raise fares. That could hurt Southwest more than most, since low fares are central to its strategy. Already, Southwest's fares are sometimes no better than those of its supposedly more upmarket rivals, particularly when a passenger books a seat at short notice.

Southwest has never signed up with websites that allow passengers to compare prices from different airlines, such as Orbitz or Kayak. And many of its passengers opt for extra services that cost money, such as early check-in, suggesting that they are willing to pay more for an easier journey.

Southwest's main advantage is that its rivals often treat passengers like cargo. Not only do they squeeze them into seats that make dentists' chairs seem comfortable, but they do so with an air of ill-concealed resentment. Southwest's staff, in contrast, affect a madcap jollity reminiscent of British holiday camps in the 1970s. They may no longer wear hot pants, but they sometimes break into song. The scramble for seats is arduous-Southwest typically does not let you reserve a specific one-but at least the stewards smile.



Southwest messes up occasionally. Last month it earned angry headlines after asking two heavy passengers to wait for the next plane. (It also asked them to buy an extra seat each.) And in April it cancelled 700 flights after one of its ageing Boeing 737s suffered an ominous crack in its roof. But still, Americans seem to like Southwest more than most. In the current issue of *Consumer Reports* it was rated America's favourite airline.

It is the small things that make the difference. Southwest still gives out free peanuts, an oddly emotive subject among travellers. It lets passengers switch their flights often, for no extra charge. Most importantly, perhaps, it does not charge for checked-in luggage. Bob Jordan, Southwest's vice president for strategy, reckons that charging for bags would have given the airline an additional $300m a year. But bag fees are so irritating that Southwest decided to go without.

Executives crow that this has allowed Southwest to poach customers from rivals, which has made up for the forgone fees. Meanwhile, Southwest has no qualms about charging for extras that irk passengers less, such as those early check-ins, and this generates a happy whack of cash.

Other airlines could imitate Southwest's original approach to smiles and peanuts. "Anybody can copy anybody, right?" Mr Jordan concedes. But he argues that the others have grown so addicted to the extra revenue from bag fees that if they change, the hurt will linger like a jumbo grounded by a snowstorm.

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A jogging craze among Indian bosses

Corporate India on the run

Pounding the pavement is perilous when there's no pavement

JOGGERS in India must brave berserk dogs, crazy traffic, searing heat and a distinct absence of pavements. But Indian bosses relish a challenge. The chief executive of TCS, India's biggest technology firm, is a serial marathon man. His counterpart at Wipro, a rival outfit, clocks 5-7km a day. Anil Ambani, one of India's richest oligarchs, often hits the streets of Mumbai before dawn, accompanied by bodyguards, impromptu admirers and wheezing paparazzi.

Many Indian bosses are of Gujarati or Marwari descent, with carbohydrate- and oil-rich vegetarian diets that can add a wobble to your middle. After two decades of scorching growth, many bosses are also superstars. Thanks to television, how they look affects their personal brand. "An industrialist is no longer a hidden face behind a corporate label," says Dilip Nadkarni, an orthopaedic surgeon, fitness guru and the author of "Knee Problem: No Problem!".

Injuries are common. "They are type-A personalities and they overdo it," observes Mr Nadkarni. Some chase the runners' high as eagerly as they chase profits. Some get upset when deprived of it. One boss, who was recently arrested in the telecoms scandal that is gripping India, was denied permission to do his daily 6km. He was allowed to do press-ups in the interrogation centre, however.

A more balanced fitness regime might be healthier, says Mr Nadkarni, perhaps combining Western methods with the forms of relaxation and breathing found in traditional Indian disciplines such as yoga. Indian industrialists are richer and slimmer than they were two decades ago, but are they in better psychological shape? Mr Nadkarni thinks not. "The guy in 1991 was more chilled out," he says.

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Carmakers

Renault's woes

A French car firm tries to draw a line under its spying scandal

CARLOS GHOSN, the chief executive of Renault and also Nissan, this week promised to spend more time in France. That would be wise. Mr Ghosn is a hero in Japan, having turned around Nissan, but he is under attack in France, where Renault is struggling. On May 30th the company appointed Carlos Tavares, a Renault insider, to be Mr Ghosn's new deputy. He will replace Patrick Pelata, who resigned after a botched probe into spying.

Mr Ghosn's error in immediately firing, without proof, three long-serving managers on false charges of espionage is seen as symptomatic of a dysfunction in Renault's management. The chief executive's superstar status may have eroded senior managers' readiness to question his judgement, says a Paris-based analyst.

The French government could have ousted Mr Ghosn (it has a 15% stake in Renault). But it did not, largely because Mr Ghosn is also the boss of Nissan, with which Renault has a vital alliance. Renault owns 43% of Nissan. Mr Tavares is intended to be a stronger number two than Mr Pelata. His appointment could even accelerate a succession tussle at Renault.

When Renault's then boss, Louis Schweitzer, sent his best managers, including Mr Ghosn, to sort out Nissan in 1999, Renault suffered. Vehicle development slowed, and the firm lost its reputation for producing conceptually innovative cars such as its Espace, Twingo and Scenic models. Instead Renault turned out less differentiated vehicles with a strong emphasis on value for money. Market share for the Renault brand in Europe declined from over 10% in 2005 to under 7% in mid-2009, according to the European Automobile Manufacturers' Association, and has only recently revived somewhat with the renewal of the Megane family of cars.

Mr Ghosn, once dubbed *le cost killer*, now faces criticism that he is better at slashing than building. "Mr Ghosn has yet to demonstrate that he has the vision necessary for a car company," says Thierry Huon, an automotive-industry analyst at Exane BNP Paribas in Paris.

Mr Ghosn may yet prove his critics wrong with his big bet on electric vehicles. This year will see the launch of the Fluence ZE saloon, the Kangoo van and the tiny Twizy two-seater. Renault and Nissan are jointly investing euro4 billion ($5.8 billion) in the project, aiming to produce 500,000 vehicles annually by 2015. While other carmakers have opted to develop hybrid cars, Renault has gone for purely electric ones. It will eventually produce its own batteries, too, so it will coin it if the market takes off.

Another reason for Mr Ghosn's unpopularity in France is the degree to which Nissan, where he made his reputation, has so dramatically outperformed the French firm. Renault's market capitalisation is currently euro11.7 billion ($16.8 billion). Nissan's is Â¥3.7 trillion ($45.3 billion). Renault's stake in Nissan, at $19 billion, is worth more on paper than Renault itself. Investors are pushing for a merger of the two companies, and Mr Ghosn has promised to review their financial structure. But a merger would mean a takeover of Renault by Nissan. In Paris, that is still unthinkable.

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Textiles in South-East Asia

Good darning, Vietnam

Rising costs in China are sending more buyers to South-East Asia



Cheaper than China

"FASHION is a form of ugliness so intolerable that we have to alter it every six months." Oscar Wilde's quip now sounds hopelessly out of date. Fashions change far more often than twice a year. And the rag trade is as footloose as its customers are fickle. It goes wherever clothes can be made cheaply and reliably. Until recently, that meant China. But as Chinese wages soar, buyers are looking elsewhere. South-East Asia could be the next big thing.

China still dominates the business. It supplies nearly half of the European Union's garment imports and 41% of America's. But more orders are shifting to lower-wage economies such as Cambodia and Vietnam, where garment factories are mushrooming. Vietnam is already the second-largest supplier of clothes to America.

The new tigers are still cubs. They often have to import fabrics from China to stitch into clothes, so their transport costs are high. For buyers in a hurry, it is hard to beat China's mix of scale, speed and flexibility. Suppliers in South-East Asia

"are all clearly behind [China]," says Pablo Isla, the chief executive of Spain's Inditex, which owns Zara, a retailer of "fast fashion" (the rag trade's equivalent of fast food).

One way to catch up would be to knit together textile and garment producers in the Association of Southeast Asian Nations (ASEAN) to create a regional supply chain. Vietnam does not produce denim, but Indonesia does, and its denim can be exported tariff-free within ASEAN to sew into jeans. This sort of partnership, promoted by USAID, America's aid agency, is attractive to fashion buyers who prefer an integrated, one-stop service. It is also a step towards the single market that ASEAN is supposed to turn into by 2015.

The idea has been knocking around for a while, but has been given a jolt by China's rising wages. Since mid-2010 the price of American garment imports has risen by around 10%, says Peter Brown of Kurt Salmon, a consultancy, partly because of high cotton and oil prices but also because of Chinese wage inflation.

Last year Guess, an American fashion retailer, vowed to cut the share of Asian goods it sourced from China from half to one-third, within 18 months. Other global brands are following suit. "Every company is pointed down this path," says Jeffrey Streader, a former executive at Guess.

ASEAN manufacturers are forming alliances. For example, Phongsak Assakul, who owns a textile mill in Bangkok, ships his pre-dyed fabrics by road to neighbouring Cambodia, where another factory cuts and sews them into summer blouses for Benetton, an Italian brand.

To compete with China, ASEAN needs to make it easier to move goods around. New roads and railways, plus faster customs clearance, all help. But infrastructure bottlenecks can delay shipments. This is a no-no for fast fashion. Winter frocks delivered in the spring are worthless.

China still has plenty of cheap labour in northern and inland cities, far from the overheated coastal boomtowns. But as it grows richer, wages will rise in the hinterland, too. Its factories will continue to churn out clothes, but they will increasingly shun simple items, such as polo shirts.

Even Chinese firms are starting to outsource low-end clothes manufacturing to Vietnam and Cambodia, observes Peter Hevicon, a Hong Kong-based buyer for Debenhams, a British retailer. And when wages rise in South-East Asia, the rag trade will move again.

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Schumpeter

The angel and the monster

Mother Teresa and Lady Gaga are the latest icons of the leadership industry. Don't laugh



THERE are obvious differences, of course. Lady Gaga's raw-meat dress would probably not have appealed to Mother Teresa of Calcutta. The pop star's habit of changing from one bizarre costume to another several times a day, and maybe 20 times during a gig, might have struck the late nun as extravagant. Mother Teresa wore the same outfit every day: a white sari with three blue stripes, reflecting her vows of poverty, chastity and obedience. Lady Gaga, by contrast, is not big on chastity. ("Baby when it's love if it's not rough it isn't fun," she sings.)

Yet the differences between the two women may matter less than their similarities. Both are venerated. Mother Teresa built her Missionaries of Charity from nothing into a global operation with fingers in over 100 countries. Lady Gaga is forecast to earn over $100m in 2011 and may soon outstrip supergroups like U2. Both women are also role models for corporate leaders, according to two recent publications, "Mother Teresa, CEO", a book by two executives, Ruma Bose and Lou Faust, and "Lady Gaga: Born This Way?", a case study by Jamie Anderson and Jorg Reckhenrich of Antwerp Management School and Martin Kupp of the European School of Management and Technology.

It is not just that, early in their careers, they traded in long, barely-pronounceable names for catchy short ones: Agnes Gonxha Bojaxhiu became Mother Teresa, Stefani Germanotta became Lady Gaga. As the two publications argue, both women succeeded by developing simple, clear brands, which coincidentally both identified with outsiders. Mother Teresa ministered to the poor and the sick: people "shunned by everyone". Lady Gaga describes herself as "a freak, a maverick, a lost soul looking for peers". She assures her fans that it is OK to be odd. This is a comforting message not only for gays but also for most teenagers.

Hard work helped both women excel. Mother Teresa rose every day at 4.40am for mass. Lady Gaga "will take Christmas Day off-and spend it with her parents-but otherwise she works non-stop." Brilliant communication helped even more. Mother Teresa was a "PR machine" who, whether talking to a dying leper or a rich donor, "always left her imprint by communicating in a language the other person understood". Lady Gaga is "one of the first pop stars to have truly built her career through the internet and social media."

Lady Gaga has what Messrs Anderson, Kupp and Reckhenrich call "leadership projection" and a layman would call charisma. The authors think this is because she tells "three universal stories". First, a personal story: who am I? (She stresses that she was the weird kid at school, but driven to be creative.) Second, a group narrative: who are we? (She calls her fans "my little monsters" and herself "Mama Monster", and she communicates with them constantly via Facebook and Twitter.) And third, a collective mission: where are we going? (She promotes gay rights and celebrates self-expression; she tells her fans that together they can change the world.)

Lady Gaga has the "ability to build emotional commitment" in those she leads, says Mr Reckhenrich. This ability is increasingly valuable in today's business world, he believes. In "The Fine Art of Success", a book he and his co-authors released last year, they examine it at length. They are now working with Egon Zehnder, an executive-recruitment firm, to figure out how to identify whether candidates for top corporate jobs have the ability to "project leadership" the way Lady Gaga does.

One risk of this leadership style is that "telling a personal story opens you up to personal attack," admits Mr Reckhenrich. Lady Gaga has been accused of lacking authenticity, and a dull, literal judge would no doubt find her guilty. Her new album cover depicts her as half-woman and half-motorbike, and claims that she was "Born this Way". This is obviously not true. However, to accuse an artist of artifice is a bit like accusing a banker of being interested in money: it may be true, but it is still trite.

Mother Teresa had her critics, too. Christopher Hitchens, a polemical atheist, called her "Hell's Angel". In his book, "The Missionary Position", he berated her for spreading an extreme form of Catholicism and for accepting money from dodgy people such as "Papa Doc" Duvalier, the late dictator of Haiti.

The mystery of charisma

Management tracts with famous names in the titles are mostly guff. There is only so much a manager can learn from Genghis Khan-it is no longer practical to impale competitors on spikes. Likewise, sceptics may doubt that the secrets of Lady Gaga's success, or Mother Teresa's, can usefully be applied to, say, a company that makes ball-bearings. A manager who calls her minions "little monsters" will probably not win their hearts. A boss who declares that God wants the sales team to meet its targets will be laughed at. Sceptics might also point out that Lady Gaga is not much of a manager. Her recent world tour attracted legions of fans but still lost money, because she kept changing the sets.

Yet charisma matters in business, and celebrities do tell us something about how it can be wielded. It is no longer enough for a corporate boss to be clever and good at giving orders. Modern knowledge workers may not put up with a hard, old-fashioned boss like Jack Welch, who used to run General Electric. Many respond better to one who communicates warmly: Indra Nooyi of PepsiCo sometimes writes to the parents of her managers to thank them for bringing up such fine children. Employees crave a sense of purpose, and the boss who can supply it will get the best out of them. Personal stories help: Steve Jobs and Richard Branson, whose business empires depend on their charisma, both play up their pasts as educational dropouts. Charisma is tough to learn, but it is not gaga to seek guidance in the stars.

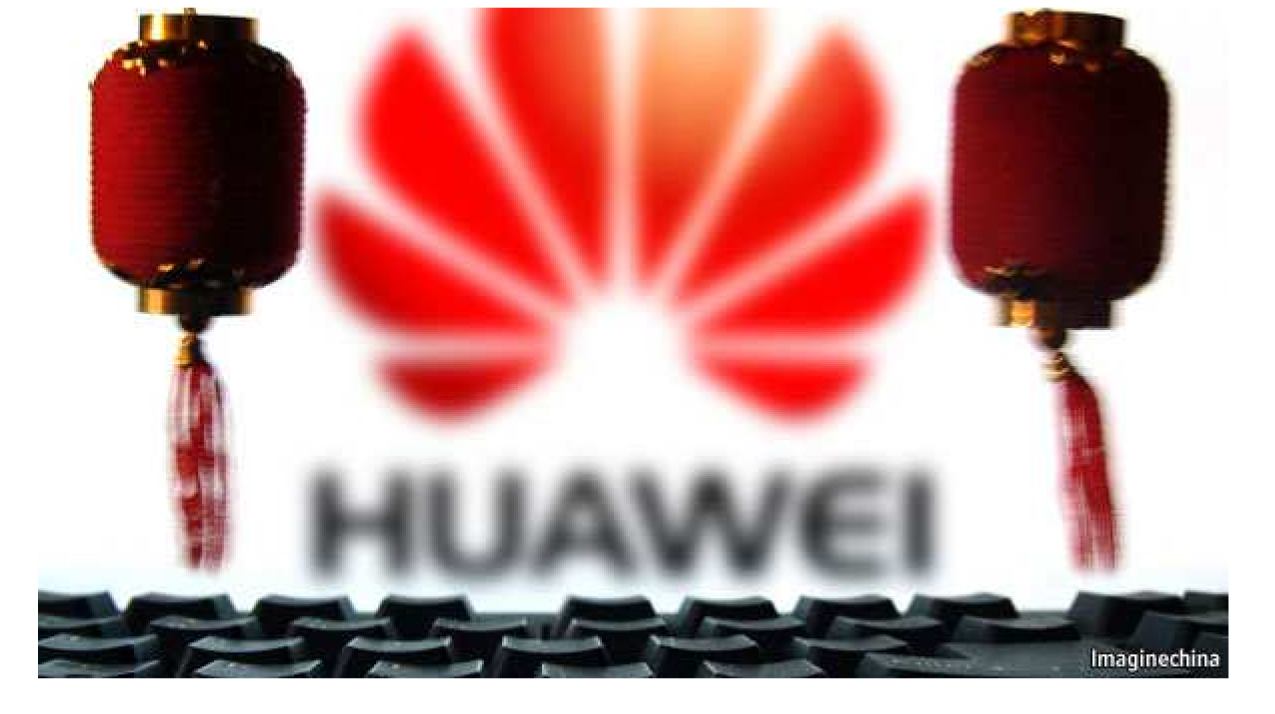
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Huawei

The long march of the invisible Mr Ren

China's technology star needs to shine more openly



"THE crisis, decline and even bankruptcy of Huawei are to come. We are in spring, but winter is very close. Don't forget that the Titanic set sail in the atmosphere of hurrah." Few bosses would be as alarmist as Ren Zhengfei, but he spoke those words in 2000 at the height of the technology bubble. He rightly feared it would pop and that it might destroy the firm he founded. Yet Huawei quickly bounced back and in 2010 became the world's second-biggest maker of telecoms equipment, with annual sales of $28 billion-not far behind the leader, Ericsson, with $30 billion in sales. This year, Huawei, which employs 110,000 people, may overtake the Swedish champion.

For Mr Ren there is still a long way to go. Within the next ten years Huawei wants to become not only a technology leader but also a $100 billion company playing in the same league as Western IT giants such as Cisco, HP and IBM.

Whether China's brightest technology star makes this transition has wider implications. It will be a test of how far Chinese companies are prepared to play the Western game to become global brands. It will also reveal how willing the West is to let a big Chinese player in-and for Huawei that is a particular problem.

Ask a politician in Washington, DC, about Huawei and the chances are that he will respond with a description of a sinister organisation: a company that is supposedly run like a military operation, which does not respect others' intellectual property and whose products are heavily subsidised by cheap loans from the China Development Bank. And, worst of all, Mr Ren once served in the People's Liberation Army (PLA).

Despite much investment and lobbying in America, the idea that Huawei is a PLA front and that Chinese spooks use its gear to listen in and even remotely control things continues to dog the company. As a result, Huawei remains confined to the periphery of America's telecoms market. Last November, when Sprint Nextel, America's third-largest mobile carrier, considered awarding a multi-billion-dollar contract to Huawei, the American firm's boss is said to have received a call from Washington, DC, and eventually opted for another vendor. In February the American government even forced Huawei to undo a minor deal: the $2m purchase of patents from 3Leaf, a bankrupt Silicon Valley start-up.

Huawei's sprawling campus in Shenzhen, across the border from Hong Kong, presents a rather different image. The multi-storey glass buildings could be in Silicon Valley. Tired faces in the lifts suggest long working hours, although the bedrolls next to desks are used for a nap during the lunch break rather than for nights at the office. At the campus's centre sits "the tower of ten thousand engineers", whose efforts can be admired in Huawei's glitzy exhibition centre. The firm pioneered the SingleRAN, a base station for mobile networks programmable for different wireless standards. It was also the first to make easy-to-use dongles that plug into laptops to connect to the internet wirelessly.

But in contrast to Silicon Valley, laptops are nowhere to be seen in Huawei's huge canteen. Leaving the office with a computer involves tiresome security procedures-in case it somehow finds its way to the firm's crosstown Chinese rival, ZTE, which Huawei recently sued over patent and trademark violations. In fact, Huawei has as much intellectual property to protect as any Western technology giant, says Song Liuping, the firm's chief legal officer. By the end of 2010 it had been awarded nearly 18,000 patents, including 3,000 overseas ones.

Other suspicions about Huawei are more difficult to quieten. In an open letter to the American government after the failed 3Leaf deal, Ken Hu, Huawei's deputy chairman, confirmed that some customers do benefit from loans from Chinese banks, but he gave little detail. Huawei has tried to allay fears about security by setting up outfits that allow customers and governments to examine its equipment. The approach has not worked well in America, but seems to be accepted in Britain, where the firm in November opened a "Cyber Security Evaluation Centre" to openly test equipment to show it meets security standards.

I did it Huawei

Still, Huawei can feel a bit like a corporate version of the Chinese Communist Party. Mr Ren is a charismatic leader. He was born in 1944, his parents were teachers and he studied civil engineering before joining the PLA. In 1987, after the PLA disbanded its engineers corps, Mr Ren started Huawei with 21,000 yuan (then $4,400) of his own money. He first imported telephone switches from Hong Kong, then decided to build his own products and spend on average 10% of revenues on R&D.

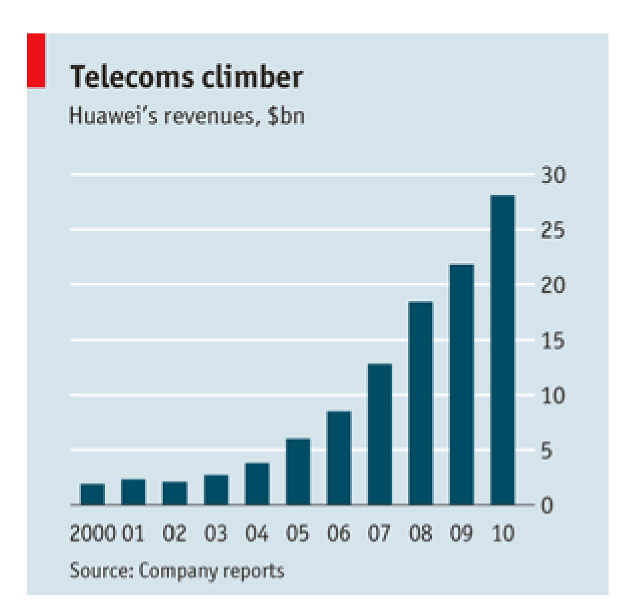
Mr Ren's mission is to help China develop its own telecoms technology (Huawei means both "China can" and "splendid act"). To achieve this, he has taken more than one page from Chairman Mao, says Liu Shengjun, deputy director of the China Europe International Business School in Shanghai. "Using the countryside to encircle and finally capture the cities", is one of Mr Ren's business strategies. Finding it tough to sell to carriers in China's big coastal cities, where state-owned equipment makers and foreign vendors reigned supreme, Huawei first went for the provinces. Offering technically advanced but cheaper equipment, and deploying armies of salespeople, the firm quickly managed to persuade local operators to buy its products. It then moved on from there.

The firm repeated the trick abroad. In Europe, for instance, the Russian government was the first customer. Contracts in eastern Europe followed, with cash-strapped operators welcoming a firm that charged at least 25% less than competitors. And the mobile miracle in Africa might not have happened so quickly without Huawei's cheap and robust equipment.

Another tactic Mr Ren copied from Mao is ideological education. In the early years, he had employees sing revolutionary songs. Even today, the thousands of new recruits hired every year undergo a six-month course that includes two weeks of cultural induction on the Shenzhen campus and an internship on the ground, for instance helping to set up base stations. This is when new Huaweians are supposed to acquire the "wolf spirit" which is said to drive the firm on.

Yet in more than one way, Huawei differs from other Chinese firms. It avoids speculative investments in property and the stockmarket. It puts customers first and develops new products in co-operation with network operators (although it sometimes also makes offers that turn out too good to be true). And Mr Ren does not hesitate to ask foreign experts for help. After a trip to America in the late 1990s, he decided better management systems were needed and ever since has spent up to 3% of revenues buying advice from Western companies like IBM.

In Europe Huawei has now clearly reached the cities. In May the firm won its first order for mobile network equipment in Britain from Everything Everywhere, a joint venture of Orange and T-Mobile. Richard Windsor of Nomura, an investment bank, predicts the market for wireless networks will become essentially a game of two players: a technology leader, Ericsson, and a cost leader, Huawei. "Operators need a cost leader to keep Ericsson honest," says Mr Windsor.



This leaves plenty to do for Mr Ren, now 66, before passing on his command. Even without its various overseas hurdles, maintaining Huawei's rapid rate of growth (see chart) is the firm's most pressing challenge, argues Stephane Teral of Infonetics Research, a market-research firm.

The reason is that the market for telecoms equipment is shifting. In recent years, most investment has gone into building networks, particularly the wireless kind. In this area, Huawei could deliver exactly what was needed: well-designed cheap equipment. Yet increasingly, as in most IT markets, it is software and services where money is being made. At Ericsson, services already generate a third of revenues, compared with half that proportion at Huawei.

In software and services it will be harder for Huawei to catch up than it was in hardware, expects Dan Hays of PRTM, a consultancy. Language and cultural differences can be big barriers to understanding the needs of foreign customers. A highly disciplined and hierarchical organisation like Huawei may be very good at optimising and cleverly combining bits of technology, but less so at providing high-end services and writing cutting-edge software.

No peeping inside

The biggest cultural barrier to Huawei's continued growth, at least in the West, may be its lack of transparency. As customers come to rely more and more on the firm, they will want to know a lot about its internal workings, predicts Dan Breznitz, a professor at the Georgia Institute of Technology and co-author of "Run of the Red Queen", a book on innovation in China. But trying to understand Huawei is a bit like Vatican-watching.

Who really controls Huawei is still an unanswered question. The firm says that Mr Ren holds only 1.42% of the stock and that the rest is in the hands of the employees who own Huawei's holding company. These pool their interests in a shareholders' union which is run by an elected committee. But the firm does not disclose much about this body, or who sits on it. Some say that the power rests with members of Mr Ren's family. Others argue that the place is actually run by a "shadow structure" of the Communist Party.

An even bigger mystery is Mr Ren himself, who must be the most reclusive boss in the technology industry. He has never given a press interview-proof, some say, of his great self-discipline. The most detailed biography Huawei has released is some 200 words in its open letter to the American government.

To its credit, Huawei has started to address both its strategy and cultural problems. As for its strategy, the firm says it wants to enter the "enterprise market", selling networking equipment and other types of hardware to companies other than telecoms operators. And Huawei plans to move fast, says William Xu, the president of the newly founded unit charged with this task: by the end of 2011 it will already boast 10,000 employees.

Huawei also intends to take a big part of the market in data centres for cloud-computing services and in smartphones. If it succeeds with smartphones, Huawei could become a household name. It wants to offer models costing between $70 and $200-the "golden range", in the words of Victor Xu, who leads the efforts to market Huawei's devices. By 2013 he wants Huawei to be among the world's top five mobile-phone makers.

These moves play to Huawei's strengths, but adapting its culture may be more difficult. Like its rivals the firm has spread its research activities around the world; it now operates 20 R&D centres globally. It has also hired more Westerners, in particular to work for its services business. But Shenzhen is still the centre of Huawei's universe and non-Chinese employees remain a small minority there. None have made it into the inner-management sanctum.

Most importantly, efforts to become more transparent have not got very far. In April its annual report, which is audited by KPMG, for the first time named the directors of the firm's boards and even gave short biographies. But it failed to mention that one member is Mr Ren's daughter and another his brother-a fact that the firm confirmed only later, adding that both have been senior managers for some time.

Nor does it help that, as far as Mr Ren's succession is concerned, the firm appears to be moving backwards. Most observers expected that a member of the tight circle of top executives would eventually take the helm, most likely Sun Yafang, who chairs the board. However, in October it was reported that Mr Ren was trying to promote family members and has plans to position his son, Ren Ping, to become his successor. Spokesmen deny that there are any such plans, but it would not be the first time in China that rumours have been launched to test the waters.

The move that would create true transparency seems to be the one that is still out of the question: taking at least part of Huawei public. Being a listed company would distract management and limit the freedom to make decisions, company

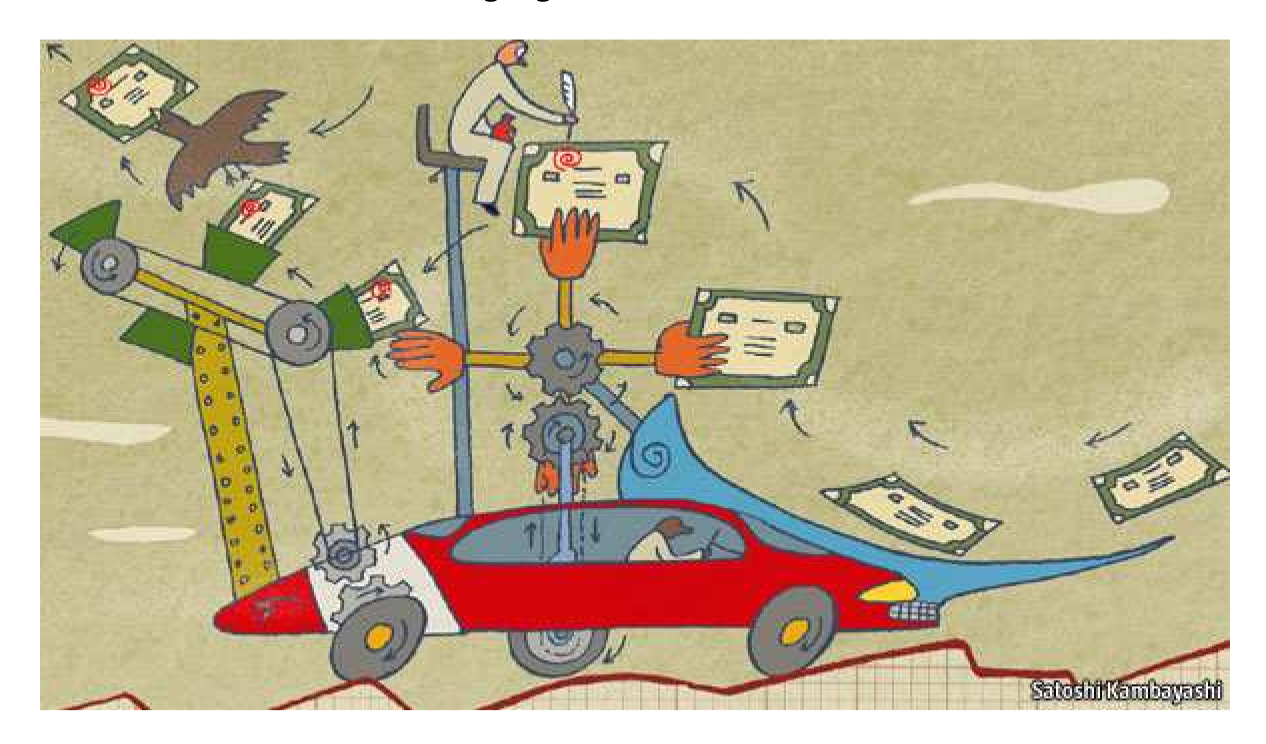
officials explain. Yet, observes Duncan Clark of BDA, a telecoms consultancy in Beijing: "The fact that they haven't gone public is feeding the suspicions."

Huawei appears to want to have it both ways: remaining a culturally Chinese company, perhaps even family-run, while competing with publicly traded Western giants. This is unlikely to work. One way or another, Huawei needs to become less secretive if its long slog is to reach the destination that Mr Ren is aiming for.

America's dodgy financial plumbing

Too big a fail count

The sheer number of unsettled trades is rattling regulators



CLEARING and settlement are supposed to ensure that share, bond and derivative deals are completed safely and on time. These back-office processes are arcane, unglamorous and too often taken for granted-until things go wrong, when their importance becomes painfully apparent. The financial crisis of 2007-09 and the "flash crash" of American stockmarkets in May 2010 revealed numerous faults in the plumbing. Efforts are under way to mend these, but regulators have been slow to attend to some worrying new blockages arising from today's high-frequency and tightly coupled markets.

Clearing is getting better. Over-the-counter derivative trades are increasingly being fed through clearinghouses, reducing the havoc that bespoke, uncollateralised trades can wreak. That has made clearers hot properties, with exchanges battling to grab control of LCH.Clearnet, a European house. But settlement-no less crucial-is proving tougher to fix.



Trades are settled when the seller delivers the security in return for cash, generally one-to-three days after the trade. Only then does the buyer legally own it and no longer have to worry about the seller defaulting. Though settlement is now largely electronic, it is plagued by "fails to deliver", which happen when the seller does not produce the security on time. These have fallen back after spiking in crises, but have been persistently high of late (see chart). In 2010 America's primary dealers reported $128 billion of fails per day on average, almost 50% higher than their combined net capital at risk, according to Fred Sommers of Basis Point Group, a consultancy.

For a while, regulators seemed to be getting on top of things. Fails in equities waned after the Securities and Exchange Commission (SEC) tightened rules on naked short-selling, an abusive practice that involves selling a share without first borrowing it, generating "phantom" shares. Treasury-bond fails fell after the Treasury Market Practices Group (TMPG), an industry body, introduced penalties for late settlement in 2009.

But like squeezing a balloon, the problem has simply moved to markets where fails are not penalised. They have, for instance, inflated for mortgage-backed securities, to the point where the TMPG has reluctantly proposed penalties similar to those introduced for Treasuries. The biggest worry, though, is exchange-traded funds (ETFs), investment vehicles that trade on stock exchanges and hold assets such as shares, bonds and commodities.

These funds have mushroomed of late, spawning all manner of innovations, some of which may be destabilising and worry regulators. Not the least of their concerns is the number of failed trades. Last year ETFs accounted for 9% of all trading volume in America's equity markets but nearly two-thirds of the value of all fails. The ETF fail rate peaked at $7 billion a day, says John Welborn, an economist with the Haverford Group, an investment firm. Some in the industry brush the fail count aside as mere clerical errors, but this seems unlikely given the number. One suspicion is that some brokers may be using naked-shorting of ETFs as a way to get around the restrictions on the practice in plain equities (these don't yet cover the funds).

Whatever the precise cause the fail count cannot be dismissed as just a book-keeping issue. A recent report by the Kauffman Foundation, which promotes entrepreneurship, concluded: "Every fail introduces a cumulative and potentially compounding liquidity risk into the orderly process of settling the $7.5 trillion of security transactions completed each day." The scale of ETF fails is a particular worry because of the funds' growing leverage and complexity.

Many moneymen agree, at least privately. In an anonymous vote at a recent conference for securities lenders, 46% agreed that short-sellers' ability to borrow more ETF shares than exist in the underlying portfolio-one cause of fails-posed a systemic risk. Left unchecked, fails could "leave a chain of intermediaries with hard-to-manage counterparty credit risk," says Tom Wipf, the TMPG's chairman.

Another concern is over who actually owns shares. Studies show that, partly because of unsettled trades, more than one party sometimes claims ownership of a stock, skewing shareholder votes. Brows are even furrowed at the Pentagon. A report on economic warfare that it commissioned in 2009 gave warning that settlement flaws could be used by terrorists to destabilise financial systems.

As well as the concerns about financial stability, there is a question of fairness. Brokers who fail to deliver securities-so they can lend them to other parties, for instance-are gaming the system at clients' expense. Delays caused by settlement

failures deprive investors of $300 billion that they could otherwise invest profitably, equating to losses of $9 billion a year at a conservative 3% interest rate, says the Kauffman report. Investors are unwittingly "underwriting this transfer to trading profits on Wall Street," it says.

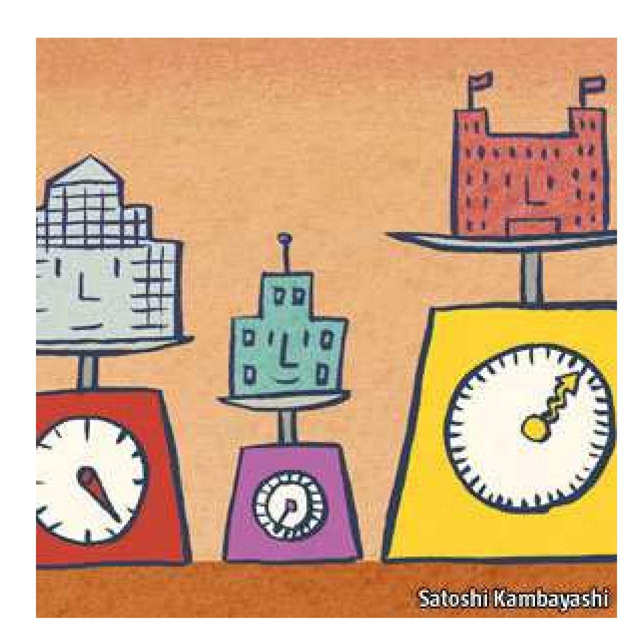
One reason why regulators have taken their time in grappling with the problem is that it remains hard to be sure why the fail count has been burgeoning and what the precise consequences might be. Amid this uncertainty there are also fears that a precipitate tightening of the rules could itself prompt a liquidity crisis. Even so, they would do well in the meantime to opt for some simple remedies, such as extending penalties for failed trades and broadening reporting of them. As Henry Hu, the SEC's former risk supremo, puts it: "The ETF market alone is now so large and complex, like a Rube Goldberg contraption atop a fast car, that anything which could possibly be a source of systemic risk deserves very close scrutiny."

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Buttonwood

On the wrong track

Is there a better way to mimic the stockmarket?



PROFESSIONAL fund managers find it very hard to outperform stockmarket indices in a reliable fashion. But can the feat be achieved without paying the kind of fees that make the managers, rather than the clients, wealthy people?

The hope is that a new form of "passive" investing (mechanically mimicking a benchmark) can deliver superior returns by the simple method of rejigging the components of the indices. Traditional indices are weighted by market value. As a result, investors will end up having their biggest exposure to a company when its value has reached its peak. They will buy up-and-coming companies when they join the index and sell them again when they drop out; it is a formula for buying high and selling low.

This potential flaw stems from the dual purposes that indices serve. They were devised to give the general investor a guide to the overall mood of the market. Back in 1896, the original Dow Jones Industrial Average was an unscientific selection of 12 American companies, weighted by the nominal level of their share prices rather than their market value. It was not until the second half of the 20th century that investors started to use indices as a benchmark to see how professional fund managers were performing.

Along with the development of stockmarket futures (which gave investors a means of hedging their exposure to the market), performance measurement generated a need for indices that conformed to standardised rules; the S&P 500

became more important than the Dow, the FTSE 100 replaced the old FT 30. In turn, this created the impetus for index-tracking funds, which gave investors large and small access to a low-cost, well-diversified portfolio.

The holy grail is to create a passive portfolio that achieves the same cost savings as traditional trackers while improving on the performance of a value-weighted index. One approach is to rank companies by other measures. Research Affiliates, for example, has developed a range of indices that use fundamental factors such as sales, cashflow, dividends and asset value to weight stocks. Over five years, its global index has outperformed the MSCI World by almost three percentage points a year and its American index has beaten the S&P 500 by just over two percentage points.

Critics say that this approach simply exploits the value effect, a long-established approach to stock-picking. Value investors look for companies that are cheap because their prospects have been underestimated by the market; as a style, the value approach can occasionally be out of fashion, most notably in the late 1990s. But Robert Arnott, who founded Research Affiliates, argues that a fundamental index also benefits from the rebalancing of the portfolio, as it buys stocks when they are cheap and sells them when they are expensive.

A similar philosophy lies behind the approach of Intech, a fund-management group which has constructed an "alpha capture" index that combines a value-weighted index with an equally-weighted approach. The latter is as simple as it sounds; for the FTSE 100 index, it would mean placing 1% of a portfolio into each of the 100 stocks.

Although past experience suggests that an equally-weighted portfolio would outperform a value-weighted one over time, it faces some practical hurdles. The fund has to invest the same amount of money in some relatively small engineering company as it does in ExxonMobil. That may require it to hold a sizeable proportion of the small company's stock, perhaps 10-20%. Such a stake would be both hard and expensive to sell. As a result, the costs of operating an equally-weighted portfolio might eliminate any potential increase in returns.

However, Intech claims that allocating a quarter of the portfolio to an equally-weighted approach delivers return advantages without increasing costs unduly. Over time, such an approach should beat the market (before fees) by around half a percentage point a year.

Can it work? Only up to a point. Conventional index-tracking has a logical advantage on its side: a value-weighted index represents, by definition, the performance of all investors. As long as the tracker has low costs, it is thus likely to beat the average manager. That is not true of these alternative measures, which depend on their ability to move in the opposite direction to the herd. As a result, there is a limit to the amount that can be invested in these approaches before they start to distort the market. But that point is many years away.

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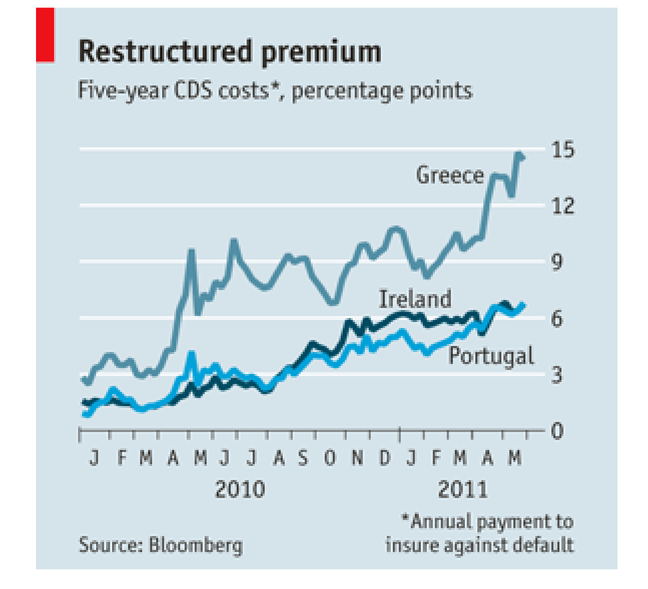
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The Greek debt crisis

Fingers on the trigger

How the credit-default market will judge a deal on Greece

A YEAR after Greece was bailed out by its euro-area partners and the IMF, even more help is being considered, given the impossibility of the Greek government raising money from the bond markets in 2012 as originally envisaged. Despite objections from the European Central Bank to any form of debt writedown, German politicians have been airing this idea as they face opposition from taxpayers at home to opening their wallets again. The terms used-"restructuring" or "reprofiling"-are fancy words for saying the money will not be paid back in full or on time.



But what would they mean for credit default swaps (CDSs)? Under a CDS, one party seeks to protect itself against the default of a bond issuer by paying an annual sum-the equivalent of an insurance premium-to someone else who wants to take on the risk. Just as house insurance will cost more for those living next to a fireworks factory, a CDS becomes more expensive when the finances of the bond issuer deteriorate (see chart).

As with any insurance contract, however, there is scope for dispute about when a claim can be made. Under a sovereign CDS, a claim depends on a "credit event", which is defined broadly as a failure to pay interest, a moratorium on principal repayments or a restructuring of the debt.

Would a reprofiling-an extension of the maturity of debt to give the Greeks some breathing-space-qualify? It depends how it was done. If investors agree to such a deal of their own free will, as happened for Uruguay in 2003, it would not constitute a credit event. Nor would one occur if European banks succumbed to some arm-twisting by their own governments to agree to a swap. But a credit event probably would occur if all bondholders were forced into the switch.

Some sovereign bonds have "collective action clauses" which allow a government to impose a deal on all creditors if a certain proportion of them agree. But according to Michael Hampden-Turner, a Citibank strategist, around 90% of Greek bonds have no such clause attached.

Should there be a dispute in the CDS market over a Greek reprofiling, it would be resolved by the International Swap Dealers Association (ISDA), a voluntary body which governs the market. Under ISDA rules, each region has a "determinations committee", comprising ten bankers and five investors, which rules on such issues. Any market participant can ask for a ruling. Unless it is backed by a supermajority of 12 out of 15 members, the decision is passed to an external review committee of independent experts, a kind of supreme court for the CDS market.

Who would win and who would lose if a reprofiling of Greek debt were treated as a credit event? The indications are that investors outside Europe have been net buyers of protection against Greece whereas European banks have been net sellers. But the pattern is far from uniform; some European banks have bought protection against the Greek bonds they hold. A Greek default would not simply reward "speculators" in the CDS market. Activity in the country's CDSs has been subdued. Dealers say the Greek market is quite illiquid since insuring against default is so expensive. Indeed, according to Morgan Stanley, only a net $5.3 billion of contracts are outstanding.

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Insuring hedge funds

Dodging the bullets

More hedge funds are seeking cover against accusations of wrongdoing

HEDGE-FUND executives are notorious for taking risks but many are now working out how to play it safe. The recent wave of investigations by regulators and high-profile trials, including the conviction last month in the Galleon case of Raj Rajaratnam for insider trading, have got hedgies chattering about how to protect themselves against enforcement actions and spiralling legal fees.

"We're getting a lot of calls," says Richard Canter, chief operating officer at SKCG Group, an insurance broker. Professional-liability insurance, such as "directors and officers" and "errors and omissions" policies, usually covers defence costs in a formal insider-trading investigation. Policies can be pricey. Every $1m of coverage costs between $13,000 and $25,000, according to one estimate, and deductibles tend to be at least $150,000.

But more funds are starting to think it's worth the price. Brian Wanat of Aon, a broker, says that a few years ago only one in four hedge funds purchased management-liability insurance. Now it's closer to one in two. Many funds that already have insurance policies are reviewing them to make sure insider trading is covered, and are increasing their policy limits.

Some investors have also started to demand that their funds buy insurance, to avoid the risk that they might use their money to pay legal fees. New financial regulations in America, including a provision that rewards whistleblowers more handsomely for tips, may result in more litigation at funds, and have also caused some nervous funds to buy insurance, says Wendy Dowd of Chubb, an insurer.

A big unknown for insurers is how often claims will be filed in a harsher regulatory environment and whether their prices will cushion them from big losses. Claims this year are already mounting but premiums have not gone up yet. Underwriters consider a variety of factors in pricing policies, including the fund's size, its strategy, investor-base, performance, volatility, leverage and service providers. But these don't necessarily offer clear guidance on how frequent and severe lawsuits could be. If claims pile up, insurers may phase out policies that include cover for insider-trading suits.

Insurers insist on several safeguards. Most policies cover only formal insider-trading investigations, not informal requests for information, which can be arduous and expensive. Moreover, policies typically give insurers the right to claw back all legal fees if the defendant is found guilty of insider trading. Michael Feinstein, executive vice-president at Hedge Fund Insurance, a broker, says he tried to sell a policy to Galleon Group a few years ago, which it didn't end up buying. But he's not sure it would have done Mr Rajaratnam much good, since in the end he probably would have had to pay the insurer back for the legal fees.

Insurance cannot protect against one of a fund's gravest threats: withdrawals. After officials from the Federal Bureau of Investigation raided Level Global last November as part of a sweeping investigation into insider trading, the hedge fund sent investors a note vowing that its insurance policy would cover the legal expenses. That didn't stop investors from pulling their money out and Level Global announced in February that it would have to wind down. "If there's the whiff of impropriety your investors flee," says one hedge-fund executive. "No amount of insurance is going to help you out there."

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Japanese stocks

Welcome, buyjin

Foreign investors are still favouring Japanese shares



UNDETERRED by the Japanese earthquake and tsunami in March, foreign investors have kept the faith. They have now been net buyers of Japanese equities for seven consecutive months, the longest streak since records began in the 1980s, ploughing in around $60 billion while domestic institutional investors have been net sellers of some $25 billion. The purchases have propped up a market that had plummeted by a fifth immediately after the disaster.

This latest bout of foreign enthusiasm differs from earlier ones, notably in 2005-07, when overseas money sparked bull runs. The investment flow has been more steady than large. It has been targeted at certain sectors like machine tools, construction equipment and electronic parts, rather than across the board. And the money is said to be from large institutions which are cautious getting in and patient before getting out. Japan has also benefited from money that has been pulled out of the Middle East and North Africa this year. Traders say that investors from China and other Asian countries may be buying through intermediaries. There will be surprises at shareholder meetings this month as novel names appear on registers, says one asset manager.

The attraction for foreign buyers is that Japanese shares are cheap relative to other markets. "Investors are buying value, not momentum," says one fund executive. Mark Mobius, an emerging-markets investor at Franklin Templeton, says that now is one of the best times to buy Japanese equities in many years because their price/earnings ratios are comparatively low.

Foreign investors have been unfazed by the immediate impact of the tsunami and nuclear disaster on the economy, which contracted at an annualised rate of 3.7% in the first quarter. They are pinning their hopes on a bounceback to growth in the second half of this year thanks to reconstruction spending. Many are expecting a boom in corporate profits on the back of buoyant exports.

The hopes may prove exaggerated. There have been plenty of disappointments before. One of the reasons why the Tokyo market is now cheap is that it has been such a poor performer over many years. And foreign investors made a bad move after the nuclear disaster in buying shares in TEPCO, the hapless operator of the Fukushima plant, whose shares have lost nine-tenths of their value since March.

Moreover, lots of things could go wrong with the economy and public finances. The clean-up bill has raised new fears about the government's ability to pay for it and bring Japan's big public debt under control at the same time. In recent days two credit-rating agencies, Moody's and Fitch, have given warning that Japan's debt rating may be downgraded.

Soon after the earthquake, tsunami and nuclear crisis, many foreigners (called *gaijin* in Japanese) fled the country. Insulted Japanese nicknamed them *flyjin*. Even the head of the Tokyo Stock Exchange, Atsushi Saito, heaped scorn on

them. But maybe they now deserve some credit for greasing the wheels for the market recovery. Time to change their name again, to *buyjin*?

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Chinese public debt

Coming clean

China faces up to the hidden debts of its local governments

BANKS in Western countries dragged their economies into the great recession. Banks in China pulled the country out of it. Much of the Chinese government's stimulus effort from 2008 to 2010 was left to financial institutions, which proved better at shoving money out of the door than America's federal government.

The banks lent to thousands of investment corporations set up by local governments, which cannot borrow in their own name. With the help of some initial capital and collateral, like land, these investment vehicles directed the lending into local bridges, tunnels and real-estate ventures. But many of the loans have turned bad, threatening the balance-sheets of the banks that made them.

Now the central government has at last resolved to clean up the mess, according to unnamed officials cited by Reuters this week. China's government will consolidate thousands of investment vehicles and hive off some of their debts into separate companies open to private investors. It will force the banks to write off another slice of the bad debt, and repay a chunk of it from its own budget. Much of the stimulus lending of 2008-10 may turn out to be public spending after all.

The government has never revealed how much debt the local-government vehicles took on. Despite this opacity, or perhaps because of it, these hidden liabilities have become one of the four big worries haunting China-watchers, along with the property bubble, inflation and lightly regulated trust companies. Victor Shih of Northwestern University has described the debts as a "big rock-candy mountain". In June 2010, he projected it might reach as high as 24 trillion yuan ($3.7 trillion) by the end of 2012, or over half of China's GDP.

But the central government itself now reckons the debts amount to 10 trillion yuan, according to an official cited by Reuters-a quarter of GDP. That is bigger than America's state and local-government debt (18%) but the same as India's (25%).

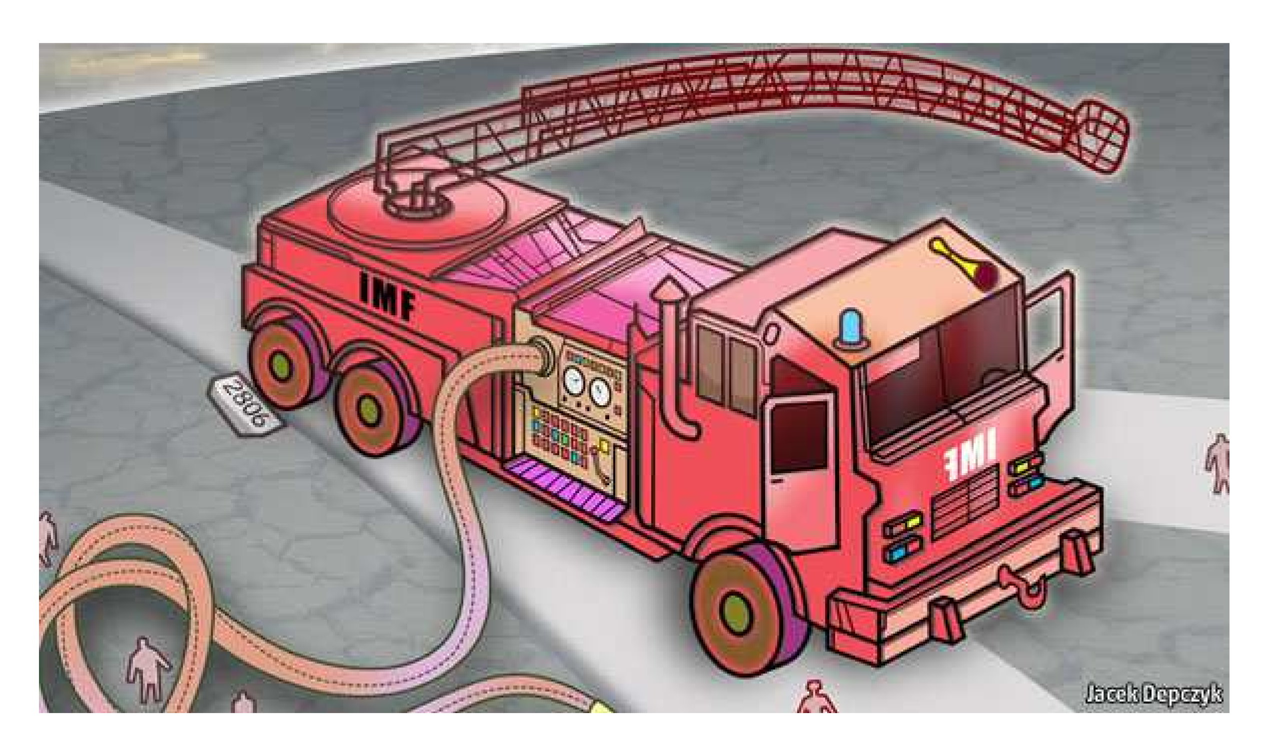
Not all of this 10 trillion yuan will go bad. Some local-government investments will prove "bankable" in the strict sense that the borrower captures a big enough return to repay the loan. An analysis by the *21st Century Business Herald*, a Chinese newspaper, suggests that only 28% of the loans have failed to generate much cashflow. In other cases, the social benefits of a project might exceed the costs, even though the benefits do not accrue to the local government itself-especially if the people employed would otherwise have stood idle.

But could China afford the stimulus? The official public debt of the central government was only 19% of GDP at the end of 2010. Adding the debts of local governments, the non-performing loans of the banks and other liabilities, such as central-bank bills, the public debt amounts to about 80% of GDP according to Andrew Batson and Janet Zhang of GaveKalDragonomics, a consultancy in Beijing. That sounds high for a developing country. But like India's similar debt burden (73% of GDP), the liabilities are mostly denominated in the country's own currency and held domestically, often by docile institutions, such as state banks. "The only entities that could trigger a crisis of confidence in government debt are themselves owned by the government," they say. China's public finances may not be as sweet as they appeared, but they are not sour.

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Wanted: chief firefighter

What the front-runner to lead the IMF could learn from the other candidates



CHRISTINE LAGARDE may be ahead by several lengths in the race to lead the IMF. But even if she wins as easily as now seems likely, the French finance minister would do well to consider the views of three of her rivals, who are central bankers as well as practitioners of the dismal science: Stanley Fischer of Israel, Agustin Carstens of Mexico and Grigori Marchenko of Kazakhstan. Political prowess is not to be sniffed at, nor is Ms Lagarde's record as a lawyer, but much of the firefighting job of the IMF involves tricky monetary and economic analysis.

Whoever prevails will inherit an outfit that has pledged euro79 billion ($114 billion)-about two-thirds of its total lending commitments-to three euro-area countries that are struggling to repay their obligations and revive their economies without the freedom to devalue their currencies. Many economists think Greece, and perhaps Ireland and Portugal, will have to write down their debts. But Mr Fischer, who has reportedly been considering a bid for the job, said in 2002 that economists are far more willing for a country to default than the country's policymakers themselves. A number-two at the IMF between 1994 and 2001, he added that "it is the policymakers who will face the political consequences."

Mr Fischer believes policymakers are "right to go far to avoid default". But how far is too far? In January 2001 the IMF gave Argentina a big "last chance" loan to help it calm its creditors. It failed. In August 2001 they gave the country a second last chance. It also failed. Mr Fischer believed the August loan had a "non-negligible" chance of success-one worth taking to avoid the catastrophe that followed. But others disagree. Michael Mussa, a former research director at the IMF, says the August loan was "the greatest mistake the fund made in my ten years there."

Mr Carstens, an openly declared candidate, knows first-hand what it means to restructure a country's debts. In 1990 Mexico swapped unpayable bank debt for so-called Brady bonds, worth about 35% less. Mr Carstens helped negotiate the deal. Like Mr Fischer, he believes such a restructuring should be "a very last resort". Nonetheless, he thinks the 7-8 years of reschedulings, roll-overs and bail-outs that preceded Mexico's final Brady deal was too long for the country to wait. A better case to study, he suggests, is Uruguay's bond renegotiation in 2003, which was orderly, voluntary and took less than two months. It was not an easy way out: restructuring works only if accompanied by tough reforms to increase the country's ability to repay, Mr Carstens says.

One of the reasons Europe's policymakers worry about default is its impact on the banks that hold the debt. In the Asian financial crisis the IMF pushed governments to clean up their banking systems sooner rather than later. The fund's critics say this made the recession worse. Repairs take time. But that is no reason for delay, Mr Fischer has argued, citing the

instructions that Hubert Lyautey, a French general, gave to his gardener: if a tree takes 150 years to mature, that's all the more reason to plant it as soon as possible.

No one has pruned the financial garden as aggressively as Mr Marchenko, the candidate backed by Russia. After Kazakhstan won its independence in 1991, financial institutions mushroomed, as state-owned enterprises set up banks to get cheap central-bank credit. From 1994 onwards, the regulators weeded out scores of banks. Anders Aslund of the Peterson Institute for International Economics in Washington, DC, says that Mr Marchenko "prides himself on having closed 80 banks". He is "as tough as they come".

What about the candidates' views on other issues facing the fund? In the late 1990s emerging economies suffered from capital outflows and plunging currencies. Today they fret about excessive inflows and strengthening currencies. Even after the Asian financial crisis Mr Fischer still believed that "orderly" capital-account liberalisation should be made one of the IMF's core purposes. But he recognises that controls on inflows, though inelegant, may be necessary at times. Indeed in January he himself imposed a reserve requirement on Israeli banks entering into foreign-exchange derivative transactions with non-residents.

Burning issues

In April the IMF released a "framework" to guide countries' thinking on such measures. Mr Carstens regrets it was not "precise" in distinguishing between capital flows prompted by external events and inflows attracted by a country's own brighter prospects. Modest controls may be legitimate in the first case, but not the second, he says.

One external factor influencing capital movements may be American monetary policy. The Fed's aggressive easing has depressed yields, encouraging capital to flow elsewhere. In principle, countries can insulate themselves from the Fed's actions by allowing their currencies to float upwards against the dollar. But in practice, countries are reluctant to do so, fearful that an excessively strong currency will hurt their exporters.

Reforming an international monetary system that relies so heavily on the greenback is one of the ambitions of Ms Lagarde's government, which now chairs the G20 group of big economies. The French have suggested a greater role for the IMF's own synthetic reserve asset, the Special Drawing Right (SDR). The value of the SDR is based on a basket of currencies (the dollar, euro, yen and pound) that might expand one day to include the yuan.

Does the SDR have a role to play in rebalancing the world economy? "The quick answer is no," says Mr Carstens. It is, after all, only a bundle of national currencies-no more than the sum of its parts. The longer answer, he says, is that it might have some indirect benefits. If the Chinese want the yuan included in the SDR, they will probably have to liberalise their capital account first. That would be welcome in itself-as a shrewd lawyer would no doubt be as quick to point out as a sharp economist.

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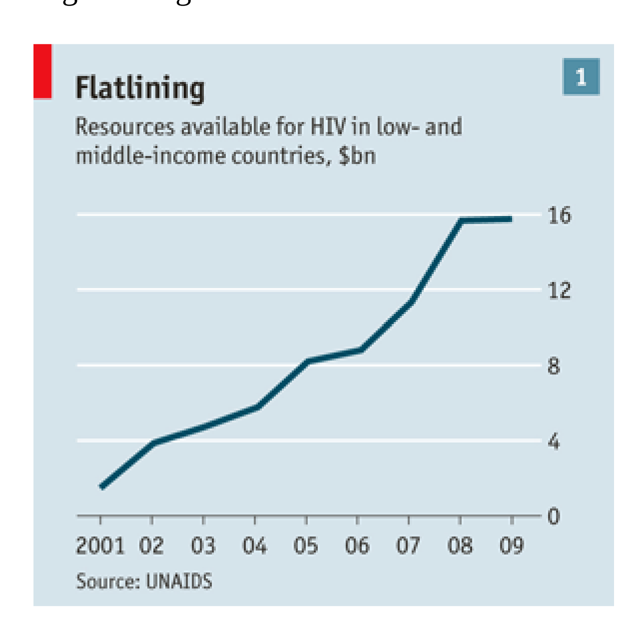
AIDS

The 30 years war

Hard pounding is gradually bringing AIDS under control



IT WAS not quite a birthday present, but it was pretty close. On May 12th the HIV Prevention Trials Network (HPTN), an international research collaboration, announced that its most important project was being terminated-not because it had failed, but because it had succeeded. The study, led by Myron Cohen of the University of North Carolina, Chapel Hill, had looked at 1,763 couples, most straight, some gay, from Africa, Asia and North and South America, in which one partner but not the other was infected. All were counselled in safe sex, given free condoms and offered regular medical check-ups. In half, the infected partner was also offered anti-retroviral drugs, even though he or she did not show actual symptoms of AIDS and would thus not normally have been treated. Over the course of six years there were 28 cross-infections. Of those, only one was in the group receiving the drugs.



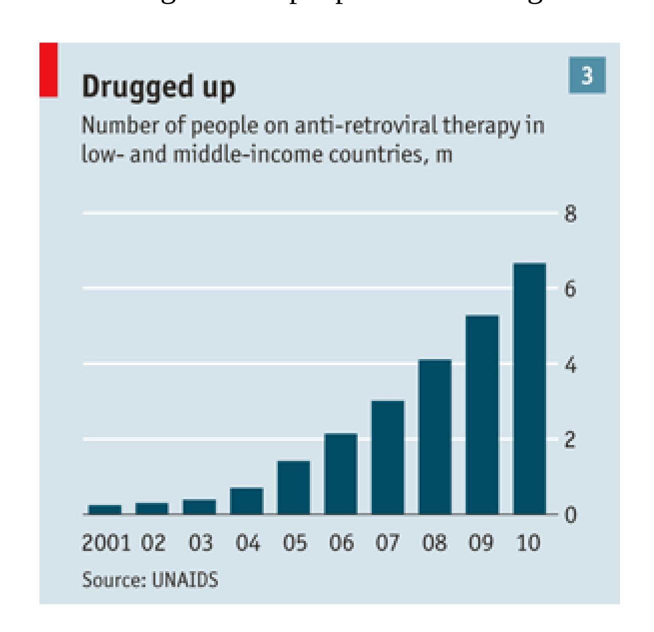
On June 5th, a little over three weeks after HPTN's announcement, AIDS will be 30 years old-or, more accurately, it will be 30 years since America's Centres for Disease Control and Prevention reported a cluster of unusual infections in Los Angeles that were the first medically recognised cases. On June 8th a meeting of the United Nations' General Assembly, expected to be attended by 40 heads of state and government, will discuss progress in fighting the pandemic and wrestle with the question of what to do next. HPTN052, as the trial in question is known, points the way.

What HPTN052 shows is that the drug treatment used to prolong the lives of those infected with HIV, by stopping the virus reproducing in their bodies, can also stop the virus's transmission. It might therefore be the key to bringing the pandemic under control. The crucial word is "might". People do not like taking medicine, particularly if they have no symptoms. And drugs cost money. The war on AIDS has done well, financially, over the past decade (see chart 1), but people are feeling the pinch and the cash is no longer increasing. That is ironic, as there are now several clear ways of attacking the problem, above and beyond the usual exhortations of chastity, fidelity and condom use. It is no time to give up the fight.



The past decade has seen real progress. Though it is true that there are two new infections for every new person put on anti-retroviral drugs, and that AIDS is killing 1.8m people a year (see chart 2), it is also the case, according to UNAIDS, the United Nations agency responsible for monitoring and combating the disease, that 6.6m people in low- and middle-income countries are on such drugs, and that the rate of new HIV infections in 33 poor countries has fallen by a quarter or more from its peak. In 2001 the number on drugs was trivial (see chart 3) and the peak number of deaths, in 2005, was 2.1m.

At the moment, only those showing symptoms of AIDS, or whose level of a crucial immune-system cell has fallen below a certain threshold, are offered treatment. Even so, there are reckoned to be about 9m people who need treatment but are not receiving it. Add those who have no symptoms and that becomes about 27m. At $100 for a year's course of the drugs, plus around $400 for the cost of administration, they would need a lot of money. In 2010, according to UNAIDS, the world spent $16 billion on the epidemic. Treating all 34m people infected might mean almost doubling that.



New balls, please

Prevention by treatment is, nevertheless, a heady prospect. Indeed, Michel Sidibe, UNAIDS's boss, thinks the result of HPTN052 is "a game changer". It would be a long game. Not only would anti-AIDS drugs have to be made available to everyone infected-so-called universal access, which is a UN objective, and which the organisation hopes might be achieved by 2015-but all those people, or, at least, the vast majority of them, would have to be persuaded to take them. That is difficult enough when someone is ill. The latest report from UNAIDS* suggests that almost one in five of those put on the drugs stops taking them within a year. It will be even harder to persuade the asymptomatic to pop a daily pill or two for the public good.

They might do so for love, of course. More selfishly, one result of HPTN052 in those receiving drugs was less tuberculosis, a disease that is a common consequence AIDS. So people now thought symptomless may not be quite as

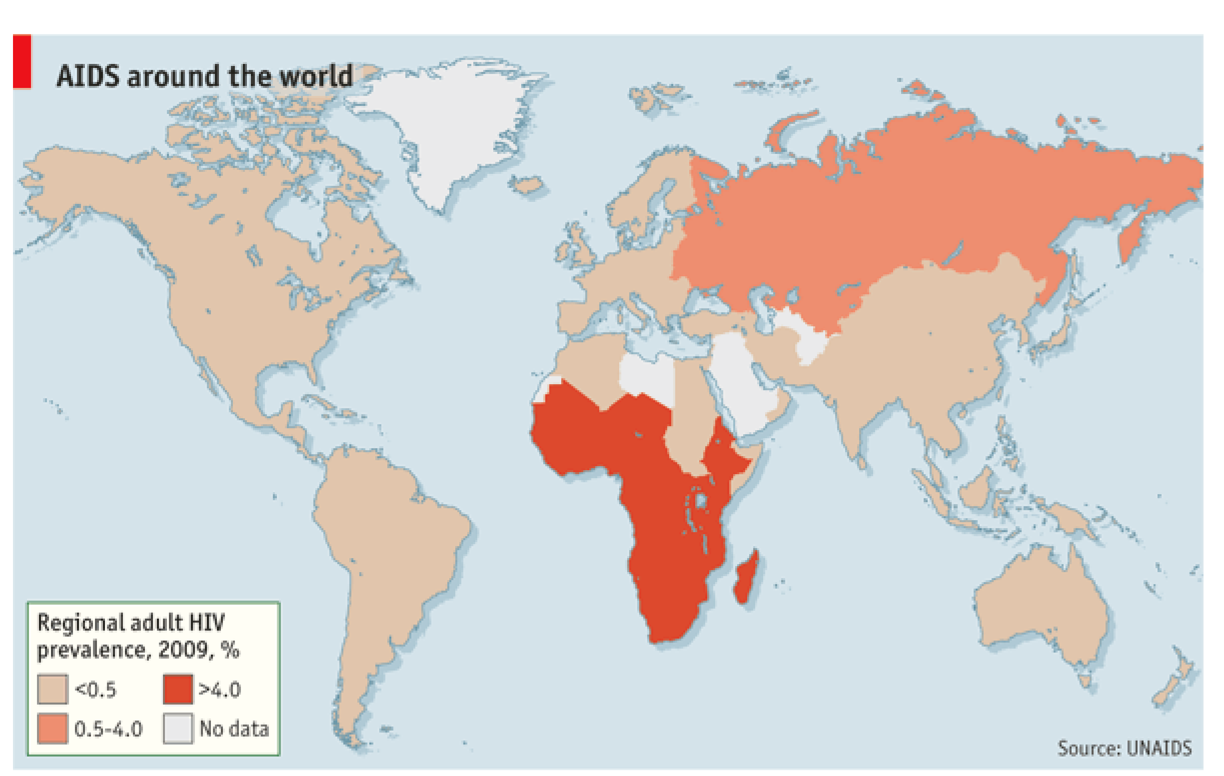
symptomless as they seem. Indeed, in 2010 the World Health Organisation raised the immune-system threshold below which drugs are offered by 75%. That is a step on the way to offering the drugs to all infected people anyway.

Nor is treating the infected, whether for their own good or for the good of others, the only approach being investigated. Several trials have shown that circumcision is a good way to stop men catching the virus. It can reduce the risk by about 50%, and the message has got out. The rate of circumcision in Africa is rocketing. Attempts to protect women, by developing vaginal microbicides that destroy HIV in infected semen, have been less successful. Initial trials using a seaweed derivative failed, and might even have made things worse. But a trial using a drug called tenofovir had promising results, reported last year, and further tests are going on at the moment. Moreover, there is already one well-proven way of stopping the virus's transmission using drugs. This is between mothers and children at birth. Even a single dose of another drug, nevirapine, halves the risk of an infected mother passing the virus to her baby. More extensive courses can reduce the risk by 90%.

There are also the good-old standbys, behaviour change (a euphemism for less promiscuous sex) and condom use. Here, the data are equivocal. As might be expected, the message is getting through in some places, but not in others. In South Africa, for example, according to UNAIDS, 77% of men and 68% of women reported using a condom last time they had sex. In 14 other high-prevalence countries, though, more than 70% of both sexes reported that they had not.

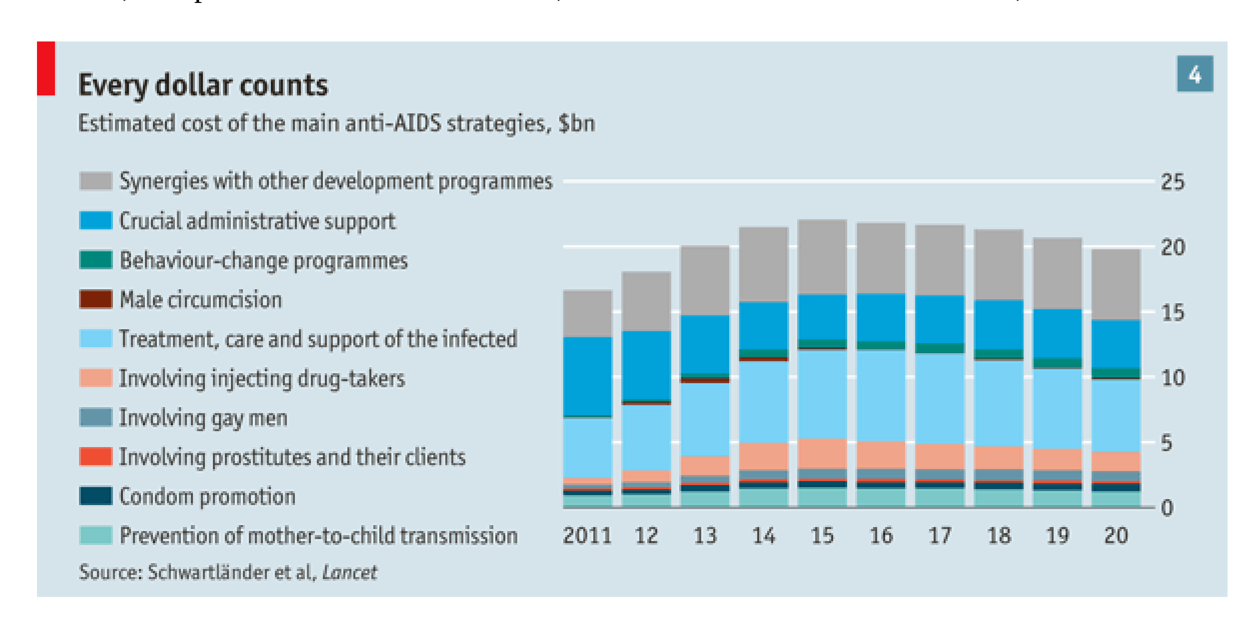
The armory, in other words, is getting fuller. But war costs money, and money is in short supply at the moment. The first UN meeting on AIDS, held ten years ago near the 20th anniversary, catalysed the formation of the Global Fund (which also has tuberculosis and malaria in its remit) and that, in turn, led to the United States President's Emergency Plan for AIDS Relief (PEPFAR) created by George Bush junior. No one likes to be seen as mean and so, in a decade of rising prosperity, politicians put their hands in their taxpayers' pockets and donated generously to the cause.

This time, the atmosphere is different. It is still the case that no one wants to be seen as mean, but the game of chicken is now the other way round. Then, each act of generosity made it harder for others to refuse. Now, each withdrawal from the fray makes another's easier. Many of the biggest donors to the Global Fund, including America, Britain, Canada, France and the Scandinavians, are still committed (Japan's position, in light of the recent earthquake and tsunami, is unclear). But the Netherlands and Spain have announced cuts. Germany (and also Spain) are delaying their payments during a review of the fund's auditing procedures. (The review, ironically, is a result of those procedures being uniquely transparent for an international aid agency, and thus highlighting shenanigans in a few recipient countries that might otherwise have remained buried.) And one country, Italy, has simply stopped paying its pledged contribution without explanation.



There is also dark talk of several countries trying to water down the language of the declaration that the UN meeting is expected to issue, so that it no longer has numerical targets with specific dates. In a time of austerity, then, value for money is even more important than it might otherwise be. A group of researchers led by Bernhard SchwartlÃ¤nder, director of evidence, strategy and results at UNAIDS, have therefore put their minds to how to spend what is available most wisely.

Dr SchwartlÃ¤nder and his team looked at ten approaches to treating and preventing AIDS, ranging from drugs, via intervening in the prostitution industry, to searching for joint savings by collaborating with other areas of international development. They then devised a computer model that attempted to show how these would play out in each of 139 low- and middle-income countries. The result (see chart 4) is that expenditure peaks at $22 billion in 2015, and drops below $20 billion in 2020. If Dr SchwartlÃ¤nder and his colleagues are right, therefore, the world (and this includes at least the middle-income members of the 139) needs to stump up a maximum of $6 billion more at the peak of things than it is doing now. Moreover, this extra money would, according to Dr SchwartlÃ¤nder's sums, largely be offset by savings on treatment avoided-for, compared with business as usual, 12.2m infections would be averted, and 7.4m deaths.



Game, set and match?

There are even a few ambitious scientists who talk not just of treatment, but of cure. Exactly how this would be done induces a flurry of arm-waving, but their reasons for believing it is theoretically possible-and thus worth investigating-are that about one infected person in 1,000 is now known to control the infection naturally and never develop symptoms, and that several studies have identified antibodies that appear to neutralise HIV. This suggests that boosting the immune system with an appropriate vaccine, or developing appropriate antibodies for injection as a drug, might be possible. Certainly Bertrand Audoin, the executive head of the International AIDS Society, thinks so. He, and people like him, are now talking guardedly of the idea of a cure for AIDS-destroying the virus in people's bodies completely, rather than just stopping it reproducing.

That is a wild hope, but this is the sort of area where a single scientific breakthrough might, like the invention of AIDS-suppressing drugs and the discovery that those drugs could be used to break the chain of transmission, change everything. Scientists always say that more research is needed, for their livelihoods depend on it. In this case, though, there is little doubt they are right.

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The history of AIDS

Heroes and villains

The story of AIDS involves many larger-than-life characters, good and bad

ANNIVERSARIES are times for reflection, and this one should be no exception, for the 30-year history of AIDS is a mirror in which humanity can examine itself. From questionable scientists to philanthropic billionaires, people's actions against AIDS, and reactions to it, have shown up the best and worst that humans have to offer.

Such dualism was there from the beginning, in the question of who discovered the AIDS-causing virus. There were two claimants. One, **Robert Gallo**, is American. The other, **Luc Montagnier**, is French. Dr Gallo called his discovery HTLV-3. Dr Montagnier called his LAV. They were in fact the same thing. It turned out, however, that Dr Gallo's virus had come from Dr Montagnier's laboratory. It was never conclusively proved how, though a contaminated sample may have been to blame. And Dr Gallo was exonerated of any wrongdoing by an official investigation and is universally recognised to have done important work on AIDS. But only Dr Montagnier won the Nobel prize-eloquent testimony to some people's opinion of the whole affair.

Another source of conflict was whether HIV, as the virus eventually came to be known, was truly the cause of AIDS. At the beginning of the epidemic, that might have been debatable. Perhaps HIV was merely a passenger that took advantage of an immune system weakened by another cause? One once-respected scientist, **Peter Duesberg**, who did early research on viral causes of cancer, would not drop the idea. He insisted-and still insists-that the weakening of the immune system characteristic of AIDS is caused by drug-taking (he blames both recreational drugs and AZT, one of the early anti-AIDS drugs), and that HIV is, indeed, a passenger.

This theory would not have mattered much except that **Thabo Mbeki**, a former president of South Africa, latched on to it. Since South Africa has the world's largest number of AIDS cases, and one of its highest infection rates, this was bad news, as was Mr Mbeki's health minister, **Manto Tshabalala-Msimang**, who was appointed mainly because she agreed with him, and recommended beetroot and garlic as treatment for the disease. Only with the election of **Jacob Zuma**, who has himself been publicly tested for HIV (he did not have it), did South Africa return to sensible anti-AIDS policies.

Among the heroes, **Bill Gates** looms large. The foundation into which he poured much of his Microsoft fortune took AIDS seriously from the beginning, forming a particularly fruitful partnership with the government of Botswana, one of the worst-affected countries. And **Nelson Mandela**, the heroes' hero, also cleaved eventually to the path of righteousness, even while admitting he had not done enough to combat AIDS during his own presidency of South Africa.

Mr Gates and Mr Mandela are easy to admire. One hero that many AIDS activists have difficulty accepting, though, is **George Bush junior**. Activists do not much like born-again Christians, who take a dim view of the sort of sex lives that help to spread HIV. But Mr Bush was responsible for setting up the President's Emergency Plan For AIDS Relief (PEPFAR) and for making sure it had plenty of money. PEPFAR is one of the two main organisations, along with the Global Fund, that dish out the cash that rich countries give poor ones to combat AIDS. Last year, it spent almost $7 billion on AIDS and the tuberculosis that often accompanies it, and it is responsible for helping half of the 6.6m people now on anti-retroviral drugs. Many activists may be reluctant to give Mr Bush credit. But handsome is as handsome does.

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Japan and sex

Waltzing into bedrooms and brothels

A new book on love and the law in Japan



Lovesick Japan: Sex, Marriage, Romance, Law. By Mark West. *Cornell University Press; 259 pages; $29.95 and pound19.95*. Buy from Amazon.com, Amazon.co.uk

ON FEBRUARY 19th 2006 Kimiko and her married lover Tetsuo checked into an Osaka love-hotel, swallowed sedatives and slit their wrists. When they awoke at midnight and realised their suicides had failed, Tetsuo strangled Kimiko at her request, then tried to hang himself and cut his wrists again. Unsuccessful, he called the police. At the trial, where an American court would consider questions of intent, the Japanese court based its ruling on whether Kimiko was in love. If she was, the court reasoned, she may have consented to her murder and Tetsuo would receive a lighter sentence.

Many facets of Japan seem mysterious to outsiders. Courts are sometimes obliged to seek answers to questions about love that may well be unanswerable. Yet in cases where love might indeed have a bearing, such as divorce, judges usually ignore the emotion entirely. Teasing out the mysteries of Japanese society by way of its statutes is the speciality of Mark West, a professor at Michigan Law School.

In "Lovesick Japan" he trolls through 2,700 court opinions to paint a picture of a country that treats marriage more as an economic contract than an emotional bond. As seen by the judiciary, a little adultery should not trump marriage as an institution. "Japanese courts have no problem waltzing into bedrooms and brothels in ways that are not essential to deciding the case at hand," he writes. "What they find there rarely seems to please them."

According to surveys, there seems to be less sex going on in Japan than in any other big country. A Health Ministry study in 2006 reported that as many as one-third of all married couples under the age of 50 had sex, or even kissed or held hands, less than once a month. Indeed, kissing itself was long considered unhygienic. It was encouraged during the American occupation in the belief that such Western ways might promote democracy and erode the patriarchal household system.

Still, the Japanese are not shy about their fetishes and the law takes a permissive attitude to commercial sex. It is not illegal to pay for sex; a 1997 study showed that more than half of all men over 25 had done just that (and that for many of them it had been their first sexual experience). Though statutes prohibit everything from pimping to providing the venue, prostitution itself carries no penalty. And prostitution is defined exclusively as intercourse: other acts don't count. As a result, "soaplands" (bathhouses where men are serviced by women) and "delivery health" (women dispatched to homes or hotels) are legitimate businesses.

Mr West presents a judiciary that is sometimes out of step with the "sense of society" on which it regularly bases its rulings. In divorce proceedings judges make it a virtue for wives to forgive adultery or overlook domestic violence.

Judges may also go far beyond their brief to comment on social mores, In one instance, in 1991, a judge decided that modern appliances are partly responsible for failed marriages because they "give women time to contemplate". In that particular case the judge rejected a wife's request for divorce after years of physical abuse, living separately and even a suicide attempt because her husband did not cheat or gamble, and looked so forlorn in court. "They should search together

for the bluebird they were unable to find before," the judge ruled. The reference to a "bluebird" is as jarring in Japanese as it is in English.

Judges use a multi-part test, that does not include love, to approve a contested divorce. Yet love plays a part in cases where it is perhaps less relevant. For instance, sexual relations with a minor is sometimes excused if the court rules there is love. Judges set out to decide whether the defendant is "earnest", which means either in love or contemplating marriage.

In the case of rape, Japanese courts consider factors that American and European ones would not. Being drunk is a valid defence. One 1992 ruling suspended the sentences of two men out of compassion for what they "must have faced when the victim told them no". A 1994 trial led to an acquittal in part because the victim's "chastity is questionable": she had slept with her boyfriend after a second date.

An Osaka District Court ruling in 2008 acknowledged a victim's lack of consent, but felt her resistance was insufficient. The 24-year-old man was simply told by the court to "reflect deeply" on his "inappropriate" act of having sex in a parked car on a public road with a 14-year-old he had met the day before. Japan's penal code does not apply statutory rape to a person over 13.

A problem with Mr West's book is that he tends to generalise on contemporary life from what are clearly extreme cases, or from rulings that are 30 or so years old. He might, with advantage, have lifted his head from the law books and carried out more of the on-the-ground research that made the book he wrote in 2005, "Law in Everyday Japan: Sex, Sumo, Suicide and Statutes", so good. In that book he examined Japanese society through the lens of law. Here, he takes the law and tries to make larger points about Japan. It is not quite as satisfying, nor is it such fun.

"Lovesick Japan" reveals more about the judiciary than it does about society. But that is still a tale worth telling. As for the late Kimiko and Tetsuo? "The court found love," reports Mr West. Tetsuo was guilty only of aiding suicide and sentenced to a mere six and a half years in prison.

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The first world war

Those who said No

Conscientious objection and patriotism in Britain



Charlotte Despard on the anti-war path

To End All Wars: A Story of Loyalty and Rebellion, 1914-1918. By Adam Hochschild. *Houghton Mifflin Harcourt; 480 pages; $28. Published in Britain as "To End All Wars: How the First World War Divided Britain". Macmillan; pound20*. Buy from Amazon.com, Amazon.co.uk

THE first world war, or the Great War as it was known to contemporaries, still exerts an unyielding grip on the consciousness of western Europeans, especially the British and the French. Schools organise regular trips to the battlefields and cemeteries of northern France and Flanders; the poems of Wilfred Owen and Siegfried Sassoon are studied by every generation of English-literature students; nearly all the participating nations (with the exception of Germany) commemorate their military sacrifice on the anniversary of Armistice Day, November 11th 1918, when the guns on the Western Front fell silent.

The sheer scale of the slaughter of the first truly industrial war has become, if anything, more shocking with the passing of time. After nearly a decade of war in Afghanistan, Britain has lost fewer than 370 of its service people; on the first day of the Battle of the Somme in July 1916, 57,500 British soldiers were killed or wounded. Above all, 1914-18 has come to symbolise the futility of war. It was a conflict that seems to us to have been fought for no great principle and whose bitter fruit was the even more destructive 1939-45 war.

For these reasons among others, there continues to be a steady stream of books about the Great War. Adam Hochschild, an American popular historian with strong pacifist leanings, has found what appears to be a new angle: the divisions within British society over the war. His book is about those who passionately opposed the war, often at great personal cost.

It starts well enough with an account of the extraordinary relationship between Charlotte Despard, a fiery upper-class radical who organised protests against the fighting, and her brother, Sir John French, Britain's most senior commander in the opening stages of the war. We also meet Emily Hobhouse, a rector's daughter who first rose to prominence by exposing the vileness of Britain's Boer war concentration camps. She is followed by Sylvia Pankhurst, the middle daughter of Emmeline (a suffragette campaigner like her daughter but who fervently backed the war), and by Keir Hardie, Sylvia's much older lover and a pacifist Labour Party leader. A philosopher, Bertrand Russell, makes several appearances. Mr Hochschild celebrates the courage of other, humbler, conscientious objectors (as they were known) whose numbers reached about 20,000 after conscription was introduced in early 1916.

But there is a difficulty. To suggest, as the book's British subtitle does, that Britain was "divided" over whether to fight is an exaggeration. There were principled critics of the war when hostilities broke out and more were recruited as the death toll mounted and people became aware of the horrors in France. But even George Lansbury, a pacifist journalist and future Labour Party leader, who had argued that it was madness for Europe's workers to be killing each other on behalf of the ruling classes, confessed to feeling carried along by the "sense of danger and service". As the carnage continued and nearly every community and family in Britain experienced loss, the dominant emotion on the home front was less fury at

the human waste or the callous incompetence of the generals, but more a gritty stoicism and quiet pride in the bravery of the young men who fought.

The author is too honest not to recognise this. Consequently, the anti-war movement, such as it was, rather fades from centre stage as he concentrates on telling with verve and controlled anger the story of the war. Mr Hochschild gives little space to the revisionism of the past 30 years which advances the view that the war was not quite as futile as it later came to be seen (could Britain and France really ignore treaty obligations in the face of German aggression?) and that the commanders, at least in the latter stages, were not all bumbling dunderheads.

Mr Hochschild writes well and shines a light on some brave and worthy people who left a legacy of principled protest to future generations of activists. Beyond this, his book, though very readable, does not add greatly to our understanding of the cataclysmic event that set the first half of the 20th century on its disastrous course.

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Mexico

Soul-searching amid the debris

Mexican individualism and violence

MaÃ±ana Forever?: Mexico and the Mexicans. By Jorge CastaÃ±eda. *Knopf; 320 pages; $27.95*. Buy from Amazon.com

Murder City: Ciudad Juarez and the Global Economy's New Killing Fields. By Charles Bowden. *Nation; 320 pages; $27.50 and pound15.99*.Buy from Amazon.com, Amazon.co.uk

LAST year should have been one long fiesta for Mexico, which celebrated both the centenary of its revolution against Porfirio Diaz, its walrus-moustached dictator, and the bicentenary of its independence from Spain. Instead, the country found itself in a funk: the opening of its economy to foreign trade in the 1990s had not led to the leap in living standards many had hoped for, and the arrival of real democracy in the same decade had not solved many of the country's old problems. Added to that, the government's crackdown on drug-trafficking cartels had led to a surge in violence, with apparently little pay-off. It was time for some serious soul-searching.

The Mexican soul holds the answer to many of the country's problems, writes Jorge CastaÃ±eda, a former foreign minister who now lectures at New York University. Mr CastaÃ±eda, who grew up partly overseas, and combines local insight with an outsider's perspective, sets out to show that the national character-in which he identifies an individualist streak, a discomfort with confrontation, and a suspicion of foreigners (principally *los gringos*)-is incompatible with the country's rebirth as an open, competitive economy. Mexico's institutions have been transformed in theory, but a better maÃ±ana will never dawn unless Mexican attitudes change too.

Witnesses from Octavio Paz, the country's greatest poet, to Cantinflas, its greatest comedian, are called to give evidence on the Mexican soul. The individualism that Mr CastaÃ±eda detects is hampering the growth of civil society. The fledgling democracy and free press are inhibited by Mexicans' rejection of controversy and bluntness. An aversion to competition helps to explain why monopolies continue to dominate the economy. Even on security, the compromise-seeking Mexicans "want to smoke their joint and have it too": they both back the war against criminals and demand that all violence cease.

The Mexican soul is already heavily studied: foreign readers may begin to sympathise with Alexander von Humboldt's remark, gamely quoted by Mr CastaÃ±eda, that "Mexicans love to envelop their most insignificant acts in mystery." It is, after all, quite a stretch to suggest that the grip of monopolies on sectors that go from telecommunications to tortillas has much to do with an aversion to conflict sowed by the Spanish conquest.

Even so, this is a lively and perceptive analysis of Mexican society. Mr CastaÃ±eda tracks the growing middle-class from its condos in Acapulco to its teenage Facebook accounts (more than half of young Mexicans are signed up). The charge that the country often finds itself "proceeding in a pre-democratic fashion in a working democracy" rings true, though few people inside Mexico admit it. Mr CastaÃ±eda, free of those traits that he observes in his fellow-countrymen, is an unusual and important voice in Mexico.

The best parts of Charles Bowden's description of a bloody year in Ciudad Juarez, by some counts the world's most murderous city, are also in its details. A funeral is interrupted as the police arrive to search the congregation, and the coffin. Killers taunt the cops by broadcasting *narcocorridos*, the gangsters' ballads, on police radio frequencies. A henchman accidentally shot in the stomach gets a boozy month in the resort of Mazatlan as compensation.

Mr Bowden's writing, which reads like fiction though it describes fact, will enchant some and drive others up the wall. He "floats in a dreamtime of death" through Juarez, never assembling an explanation for the extraordinary violence he documents. The official account, that the mayhem is caused by warring cartels, is rejected, but Mr Bowden's claim that "the line between government and the drug world has never existed" is never satisfactorily proven-unsurprisingly, as it is false. Nor is it true that the bosses of the big cartels "have not had a hair on their heads touched": the past year has in fact seen several high-profile arrests and killings. A better criticism would be that taking out the leaders has done nothing to stop the flow of cocaine, or the violence.

Still, the strangulations, burnings and burials outlined in this obituary of a city should open anyone's eyes to the horror unleashed by the war on drugs. For too many Mexicans, maÃ±ana never comes.

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Americans in Paris

They were there, Lafayette

Paris was their goal



Sargent's love of Paris revealed in this painting of the Luxembourg Gardens

The Greater Journey: Americans in Paris. By David McCullough. *Simon & Schuster; 544 pages; $37.50*. Buy from Amazon.com

"WHEN good Americans die, they go to Paris," observed Thomas Gold Appleton, a Boston wit of the 19th century. Appleton is just one of the characters in David McCullough's excellent reminder that Americans' love of Paris began a good century before the arrival in the "City of Light" of men such as Ernest Hemingway or James Baldwin. From James Fenimore Cooper, author of "The Last of the Mohicans", to Samuel Morse, a painter better known now as the inventor of the telegraph, American visitors were seduced by Paris: "Never in their lives had the Americans seen such parks and palaces, or such beautiful bridges or so many bridges."

Paris was so much more advanced-in the arts, the sciences and medicine-than Boston, New York or Washington, DC. Morse, already a successful artist in America when he was commissioned at 28 to produce a portrait of President Monroe, declared that he had to go to Paris: "My education as a painter is incomplete without it." This desire for improvement was "the greater journey" of Mr McCullough's title, following the often dangerous journey across the Atlantic, first by sailing ship and only later under steam.

Mr McCullough, twice a winner of the Pulitzer prize, tells his story well. One chapter describes the medical schools and hospitals of Paris, well ahead of their counterparts in America. A particular boon for the visiting American students was the "ample opportunity to examine female patients as well as men. This was not the case in America, where most women would have preferred to die than have a physician-a man-examine their bodies."

Another chapter describes the infinite care with which Augustus Saint-Gaudens (an American despite his name) created in his Paris studio the giant statue to Admiral David Farragut that now stands in New York. Mr McCullough brings a similar, impressive understanding to the paintings of John Singer Sargent and other artists who came to Paris to perfect their craft.

But Mr McCullough is more historian than art critic-which is just as well given that his book goes from 1820 to the end of the century, a period in France's turbulent history that embraced both monarchy and revolution. His description of the 1870-71 siege of Paris and the subsequent nightmare of the Paris Commune is masterly.

Perhaps this is why the real hero of this account is neither artist nor writer but Elihu Washburne, a former Republican member of Congress who served as America's minister (ambassador) to France from 1869 to 1877. Unencumbered by any training as a diplomat, Washburne proved to be an indefatigable protector of America's interests, arranging passports for Americans to escape the siege and acting with bravery during the two months of the Paris Commune. Mr McCullough was fortunate enough to discover Washburne's own diary of the period, basing two of his best chapters on its vivid entries.

Mr McCullough stops his story at the start of the 20th century, even though the American fascination for Paris continues. But do Americans living in Paris thereby become real *Parisiens*? It seems unlikely. As Saint-Gaudens wrote: "coming here has been a wonderful experience, surprising in many respects, one of them being to find how much of an American I am."

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New film: "The Tree of Life"

Angels in Waco

Questions for God, and for man



Brad Pitt as Father

TERRENCE MALICK, who wrote and directed this long-awaited film gets right to the point at the beginning. The opening titles of "The Tree of Life" ask the question Jehovah asked Job: "Where were you when I laid the foundation of the earth?" Later we see images of the Creation ("when the morning stars sang together") and a terrestrial scene that recalls another of the Creator's questions: "Can you draw out Leviathan with a hook?" The fact that Mr Malick's Leviathan is a beached plesiosaur will draw fire from anti-Darwinians. Though "The Tree of Life" is a Christian film, it is not for filmgoers with narrow views.

The joys of growing up in Waco, Texas, during the Eisenhower era are remembered by Jack (Sean Penn), an architect trapped in a world of greed and glass skyscrapers that he probably helped to build. His questioning voice-over, addressed to God, alternates with young Jack (Hunter McCracken) asking God his own questions as the camera tells the story of Father (Brad Pitt), Mother (Jessica Chastain), Jack and his brothers, all from Jack's point of view, with very little dialogue. Father, who thinks the world is a jungle, is an abusive patriarch; Mother shows her children the way of grace. "Father, mother, always you wrestle inside me," murmurs Jack. The film-maker has remembered his own Texas childhood and recreated it brilliantly with his young actors.

In keeping with the belief that any life closely considered justifies the ways of God to Man, Jack's childhood becomes the centre of a cosmic narrative that takes us from Creation to the End of Days, where we discover that Leviathan (or nature, here) was God's mask, like the discarded domino mask in one of the film's last images. Jack is redeemed by an apocalyptic vision that answers the reproachful questions he imagined Mother asking God at the beginning, when her second child died. It is this great film's boldest stroke to let her questions float over those fearful early images of an indifferent cosmos as if she had been asking them since the dawn of time.

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The evolution of feathers

Fluff and flight

How birds took to flight, and more



Feathers: The Evolution of a Natural Miracle. By Thor Hanson. *Basic Books; 336 pages; $25.99 and pound18.99*. Buy from Amazon.com, Amazon.co.uk

THOR HANSON'S new book takes on the intriguing subject of feathers. With infectious enthusiasm, he describes them, from their earliest known incarnations to their place in the modern world.

He starts at their beginning with a weighty introduction that looks at fossils dating back to the dinosaurs, the structure of feathers and the evolution of birds. From there on, the remaining chapters are captivating natural history, arranged in neatly named sections: "fluff", how feathers keep birds warm and dry; "flight", how they take to the sky; "fancy", the myriad beauty of feathers for sexual selection in birds and decoration for humans; and "function", how feather structure can inform new technologies.

Mr Hanson is a knowledgeable biologist and an active environmentalist, but his favoured place is in the field, witnessing things first-hand. He goes to see the first feather fossil in a Wyoming museum, the plumed showgirls in Las Vegas, a down-pillow factory in Seattle. He also carries out rustic home-experiments in his Raccoon Shack. He plucks a wren with tweezers (one of many roadkill samples squirrelled away in his freezer), and in order to verify why vultures have evolved with featherless heads (and long necks) he dunks feathers into a bowl of dead bullfrogs then blasts them with a hairdryer. The inevitable result is a sticky mess.

Mr Hanson's unpretentious style makes what is essentially an excellent scientific work into an enjoyable read for the ignorant and uninitiated. The most entertaining part is about the beauty of feathers, and their attraction for other birds and humans. He describes male birds of paradise with their exotic plumage *lekking* (displaying) to attract mates-and also the New Guinea tribesmen who collect their feathers as a symbol of status.

One of the most fascinating stories is that of the Trans-Saharan Ostrich Expedition in 1911. A group of South Africans endured months of Saharan treks and stiff diplomacy to claim the near-mythic Barbary Ostrich from French West Africa. They then sold the birds' exclusive and expensive plumes to milliners across America and Europe. It was the crown commodity in the lucrative feather trade.

Mr Hanson travels many paths on his feathery journey. "Their evolution has never been idle," he says, and presumably never will be. There is little in the way of future predictions, apart from the suggestion that aeroplane wings may soon have bristles, a "fuzziness" that would reduce drag and therefore be more fuel-efficient. But he has delivered an illuminating study of an evolutionary marvel.

He ends with a plea to protect endangered species and threatened ecosystems. Though he accepts that all feather fanatics and readers will not be "die-hard birders" like himself, he urges them at least to be bird advocates so that future generations can admire and learn from the species. It is difficult to disagree.

Nasser Hejazi

Nasser Hejazi, footballer and symbol of resistance to the regime in Iran, died on May 23rd, aged 61



GOALKEEPERS are not temperamentally aggressive; their job is to defend. So it must have surprised many people when Nasser Hejazi's public comments began to depart from his customary discussion of sporting triumphs and disappointments, and turned instead to politics. Not that he was combative. The defender in him kept his remarks to the anodyne, or at least to what most people in most places would regard as the anodyne. In Iran, however, any criticism of the government carries risks, even for a national hero.

And that he was. Whether playing for the Tehran team Esteghlal, which he did for nearly 20 years, or for his country, which he did on 62 occasions, or acting as manager for several Iranian and Bangladeshi teams, he gathered fans by the million. His skill at intercepting the ball earned him the title of the Eagle of Asia. Widely considered Iran's best goalkeeper ever, and officially ranked as Asia's second-best in the 20th century, he caught the eye of Manchester United's manager during the 1978 World Cup and played for a month in England. It might have been longer, had not events at home-Iran underwent a revolution in 1979-got in the way.

They also put an end to his international career when, for no good reason, a member of the new Islamic government's Physical Education Department declared that no one older than 27 would be allowed to represent Iran internationally. Mr Hejazi was then 30. This was the sort of arbitrary decision that no doubt cooled any enthusiasm he might have had for the new regime. He became critical of the way football was run in Iran, implying cronyism and saying money played too big a part. Such comments were taking him ever farther from sport and closer to politics.

In truth, the two are closely related in Iran, and football is especially intertwined both with the commercial interests of the government and with its propaganda objectives. Of the 18 professional clubs in the country's premier league, for example, 17 are owned by government departments, agencies or industries. Thus Rah Ahan is owned by Iran Railways, Naft Tehran by the national oil company, Tractor Sazi by the state tractor firm and Malavan by the navy. Moreover, the clubs are often run by members of the Revolutionary Guard, part of the armed forces, with help from the *baseej*, Iran's volunteer paramilitaries. In a football-crazy country, there is money, patronage and corruption in all this and, since Iran has only two private-sector teams, most of it is politically controlled.

Football can also bring some pleasant non-financial returns to the regime. When Iran knocked the United States out of the 1998 World Cup, the defeat of the Great Satan was widely celebrated. But in the qualifying matches the previous year, a triumph over Australia in Melbourne had brought unexpected problems, showing the fickle side of football. In their

delight, men and women surged onto the streets of Iran's cities and-*O tempora! O mores!*-celebrated together uninhibitedly. This raised the hopes of people like Mr Hejazi that women might yet be allowed to watch football matches as men were. A new, reformist president, Muhammad Khatami, held out the promise of less repressive rules that might one day even allow women to take part in sport without donning the all- enveloping *hijab*. It was not to be. And then, in 2001, came the astonishing defeat of the national team by tiny Bahrain, which dashed Iran's hopes for the 2002 World Cup. The lassitude of the players, more inert than inept, made many Iranians assume they had been either bribed or threatened to ensure no repetition of the unseemly 1997 celebrations.

Soon, hopes that Mr Khatami would challenge the conservative clerics who hold ultimate power in Iran turned to doubts. So, thinking it was time to make a stand, Mr Hejazi announced in 2004 that he would be an independent candidate in the next year's presidential election. Not a chance, said the Council of Guardians, protectors of the constitution: he did not have enough political experience. In fact they realised that the man known as the Legend had a national following that could prove dangerous. The risks were brought home to them in 2009 when several of Iran's players took to a World Cup pitch wearing green wristbands in support of the opposition's presidential candidate.

Bread, circuses and fireworks

Mr Hejazi continued to speak out. "I am agonised", he said, "to see [the authorities] interpret poverty as contentment, inefficiency as patience and, with a smile on their faces, they call this very stupidity wisdom." For this he was banned for a while from Iranian television, though he was already dying of lung cancer. Even in death, however, he continued to terrify the regime. Over 20,000 mourners came to the first part of his funeral, held in Azadi stadium in Tehran on May 25th, many of them chanting anti-government slogans. Unusually, some women were let into the stadium, but officials swiftly took the body away for a secretive burial at Behesht-e Zahra cemetery. There, contrary to custom, no outdoor prayers were said.

Repressive governments try to keep the populace happy with bread and circuses. Thanks in part to Mr Hejazi, Iran's regime knows that the circus of the football stadium holds as many hazards as rewards.
